

#5



SEQUENCE LISTING

<110> Li, Li
Padigaru, Muralidhara
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Kekuda, Ramesh
Colman, Steven
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Casman, Stacie
Edinger, Shlomit
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Smithson, Glennda
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Anderson, David
Gusev, Vladimir
Malyankar, Uriel
Zhong, Haihong
Ellerman, Karen
Wolenc, Adam

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Leu Pro Asp Thr Phe Phe Leu Thr Gly Ile Pro Gly Leu Glu Ala Ala
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His Phe Trp Ile Ala Ile Pro Phe Cys Ala Met Tyr Leu Val Ala Leu
35 40 45

gtt gga aat gct gcc ctc atc ctg gtc att gcc atg gac aat gct ctt 194
Val Gly Asn Ala Ala Leu Ile Leu Val Ile Ala Met Asp Asn Ala Leu
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cat gca cct atg tac ctc ttc ctc tgc ctt ctc tca ctc aca gac ctg 242
His Ala Pro Met Tyr Leu Phe Leu Cys Leu Leu Ser Leu Thr Asp Leu
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gct ctc agt tct acc act gtg ccc aag atg ctg gcc att ttg tgg ctc 290
Ala Leu Ser Ser Thr Thr Val Pro Lys Met Leu Ala Ile Leu Trp Leu
80 85 90

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| His Ala Gly Glu Ile Ser Phe Gly Gly Cys Leu Ala Gln Met Phe Cys | |
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| Val His Ser Ile Tyr Ala Leu Glu Ser Ser Ile Leu Leu Ala Met Ala | |
| 115 120 125 | |
| ttt gat agg tat gtg gct atc tgt aac cca tta agg tat aca acc att | 434 |
| Phe Asp Arg Tyr Val Ala Ile Cys Asn Pro Leu Arg Tyr Thr Thr Ile | |
| 130 135 140 | |
| ctc aac cat gct gtc ata ggc aga att ggc ttt gtt ggg cta ttc cgt | 482 |
| Leu Asn His Ala Val Ile Gly Arg Ile Gly Phe Val Gly Leu Phe Arg | |
| 145 150 155 | |
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| Ser Val Ala Ile Val Ser Pro Phe Ile Phe Leu Leu Arg Arg Leu Pro | |
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| Tyr Cys Gly His Arg Val Met Thr His Thr Tyr Cys Glu His Met Gly | |
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| Ile Ala Arg Leu Ala Cys Ala Asn Ile Thr Val Asn Ile Val Tyr Gly | |
| 195 200 205 | |
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| Leu Thr Val Ala Leu Leu Ala Met Gly Leu Asp Ser Ile Leu Ile Ala | |
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| att tcc tat ggc ttt atc ctc cat gca gtc ttt cac ctt cca tct cat | 722 |
| Ile Ser Tyr Gly Phe Ile Leu His Ala Val Phe His Leu Pro Ser His | |
| 225 230 235 | |
| gat gcc cag cac aaa gct ctg agt acc tgt ggc tcc cac att ggc atc | 770 |
| Asp Ala Gln His Lys Ala Leu Ser Thr Cys Gly Ser His Ile Gly Ile | |
| 240 245 250 | |
| atc ctg gtt ttc tac atc cct gcc ttc ttc tcc ttc ctc acc cac cgc | 818 |
| Ile Leu Val Phe Tyr Ile Pro Ala Phe Phe Ser Phe Leu Thr His Arg | |
| 255 260 265 270 | |
| ttt ggt cac cac gaa gtc ccc aag cat gtg cac atc ttt ctg gct aat | 866 |
| Phe Gly His His Glu Val Pro Lys His Val His Ile Phe Leu Ala Asn | |
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| Leu Tyr Val Leu Val Pro Pro Val Leu Asn Pro Ile Leu Tyr Gly Ala | |
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| aga acc aag gag att cgg agt cga ctt cta aaa ctg ctt cac ctg ggg | 962 |
| Arg Thr Lys Glu Ile Arg Ser Arg Leu Leu Lys Leu Leu His Leu Gly | |
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 Ser Ser Thr Thr Val Pro Lys Met Leu Ala Ile Leu Trp Leu His Ala
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 Gly Glu Ile Ser Phe Gly Gly Cys Leu Ala Gln Met Phe Cys Val His
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 Ser Ile Tyr Ala Leu Glu Ser Ser Ile Leu Leu Ala Met Ala Phe Asp
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 Arg Tyr Val Ala Ile Cys Asn Pro Leu Arg Tyr Thr Thr Ile Leu Asn
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 His Ala Val Ile Gly Arg Ile Gly Phe Val Gly Leu Phe Arg Ser Val
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 Ala Ile Val Ser Pro Phe Ile Phe Leu Leu Arg Arg Leu Pro Tyr Cys
 165 170 175
 Gly His Arg Val Met Thr His Thr Tyr Cys Glu His Met Gly Ile Ala
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 Arg Leu Ala Cys Ala Asn Ile Thr Val Asn Ile Val Tyr Gly Leu Thr
 195 200 205
 Val Ala Leu Leu Ala Met Gly Leu Asp Ser Ile Leu Ile Ala Ile Ser
 210 215 220
 Tyr Gly Phe Ile Leu His Ala Val Phe His Leu Pro Ser His Asp Ala
 225 230 235 240
 Gln His Lys Ala Leu Ser Thr Cys Gly Ser His Ile Gly Ile Ile Leu

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| | 245 | | 250 | | 255 |
| Val Phe Tyr Ile Pro Ala Phe Phe Ser Phe Leu Thr His Arg Phe Gly | | | | | |
| | 260 | | 265 | | 270 |
| His His Glu Val Pro Lys His Val His Ile Phe Leu Ala Asn Leu Tyr | | | | | |
| | 275 | | 280 | | 285 |
| Val Leu Val Pro Pro Val Leu Asn Pro Ile Leu Tyr Gly Ala Arg Thr | | | | | |
| | 290 | | 295 | | 300 |
| Lys Glu Ile Arg Ser Arg Leu Leu Lys Leu Leu His Leu Gly Lys Thr | | | | | |
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| Leu Pro Asp Thr Phe Phe Leu Thr Gly Ile Pro Gly Leu Glu Ala Ala | |
| 15 20 25 30 | |
| cac ttc tgg att gcc atc cct ttc tgt gcc atg tat ctt gta gca ctg | 144 |
| His Phe Trp Ile Ala Ile Pro Phe Cys Ala Met Tyr Leu Val Ala Leu | |
| 35 40 45 | |
| gtt gga aat gct gcc ctc atc ctg gtc att gcc atg gac aat gct ctt | 192 |
| Val Gly Asn Ala Ala Leu Ile Leu Val Ile Ala Met Asp Asn Ala Leu | |
| 50 55 60 | |
| cat gca cct atg tac ctc ttc ctc tgc ctt ctc tca ctc aca gac ctg | 240 |
| His Ala Pro Met Tyr Leu Phe Leu Cys Leu Leu Ser Leu Thr Asp Leu | |
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| Ala Leu Ser Ser Thr Thr Val Pro Lys Met Leu Ala Ile Leu Trp Leu | |
| 80 85 90 | |
| cat gct ggt gag att tcc ttt ggt gga tgc ctg gcc cag atg ttt tgt | 336 |
| His Ala Gly Glu Ile Ser Phe Gly Gly Cys Leu Ala Gln Met Phe Cys | |
| 95 100 105 110 | |

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| Phe Asp Arg Tyr Val Ala Ile Cys Asn Pro Leu Arg Tyr Thr Thr Ile | |
| 130 135 140 | |
| ctc aac cat gct gtc ata ggc aga att ggc ttt gtt ggg cta ttc cgt | 480 |
| Leu Asn His Ala Val Ile Gly Arg Ile Gly Phe Val Gly Leu Phe Arg | |
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| agt gtg gct att gtc tcc ccc ttc atc ttc ttg ctg agg cga ctc ccc | 528 |
| Ser Val Ala Ile Val Ser Pro Phe Ile Phe Leu Leu Arg Arg Leu Pro | |
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| Tyr Cys Gly His Arg Val Met Thr His Thr Tyr Cys Glu His Met Gly | |
| 175 180 185 190 | |
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| Ile Ala Arg Leu Ala Cys Ala Asn Ile Thr Val Asn Ile Val Tyr Gly | |
| 195 200 205 | |
| cta act gtg gct ctg ctg gcc atg gga ctg gat tcc att ctc att gcc | 672 |
| Leu Thr Val Ala Leu Leu Ala Met Gly Leu Asp Ser Ile Leu Ile Ala | |
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| Ile Ser Tyr Gly Phe Ile Leu His Ala Val Phe His Leu Pro Ser His | |
| 225 230 235 | |
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| Asp Ala Gln His Lys Ala Leu Ser Thr Cys Gly Ser His Ile Gly Ile | |
| 240 245 250 | |
| acc ctg gtt ttc tac atc cct gcc ttc ttc tcc ttc ctc acc cac cgc | 816 |
| Thr Leu Val Phe Tyr Ile Pro Ala Phe Phe Ser Phe Leu Thr His Arg | |
| 255 260 265 270 | |
| ttt ggt cac cac gaa gtc ccc aag cat gtg cac atc ttt ctg gct aat | 864 |
| Phe Gly His His Glu Val Pro Lys His Val His Ile Phe Leu Ala Asn | |
| 275 280 285 | |
| ctc tat gtg ctg gtg cct cct gta ctc aat cct att ctc tat gga gtt | 912 |
| Leu Tyr Val Leu Val Pro Pro Val Leu Asn Pro Ile Leu Tyr Gly Val | |
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| aga acc aag gag att cgg agt cga ctt cta aaa ctg ctt cac ctg ggg | 960 |
| Arg Thr Lys Glu Ile Arg Ser Arg Leu Leu Lys Leu Leu His Leu Gly | |
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| Lys Thr Ser Ile | |
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| Asp | Thr | Phe | Phe | Leu | Thr | Gly | Ile | Pro | Gly | Leu | Glu | Ala | Ala | His | Phe |
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| Trp | Ile | Ala | Ile | Pro | Phe | Cys | Ala | Met | Tyr | Leu | Val | Ala | Leu | Val | Gly |
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| Asn | Ala | Ala | Leu | Ile | Leu | Val | Ile | Ala | Met | Asp | Asn | Ala | Leu | His | Ala |
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| Pro | Met | Tyr | Leu | Phe | Leu | Cys | Leu | Leu | Ser | Leu | Thr | Asp | Leu | Ala | Leu |
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| Ser | Ser | Thr | Thr | Val | Pro | Lys | Met | Leu | Ala | Ile | Leu | Trp | Leu | His | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Glu | Ile | Ser | Phe | Gly | Gly | Cys | Leu | Ala | Gln | Met | Phe | Cys | Val | His |
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| Ser | Ile | Tyr | Ala | Leu | Glu | Ser | Ser | Ile | Leu | Leu | Ala | Met | Ala | Phe | Asp |
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| Arg | Tyr | Val | Ala | Ile | Cys | Asn | Pro | Leu | Arg | Tyr | Thr | Thr | Ile | Leu | Asn |
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| His | Ala | Val | Ile | Gly | Arg | Ile | Gly | Phe | Val | Gly | Leu | Phe | Arg | Ser | Val |
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| Ala | Ile | Val | Ser | Pro | Phe | Ile | Phe | Leu | Leu | Arg | Arg | Leu | Pro | Tyr | Cys |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Gly | His | Arg | Val | Met | Thr | His | Thr | Tyr | Cys | Glu | His | Met | Gly | Ile | Ala |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Arg | Leu | Ala | Cys | Ala | Asn | Ile | Thr | Val | Asn | Ile | Val | Tyr | Gly | Leu | Thr |
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| Val | Ala | Leu | Leu | Ala | Met | Gly | Leu | Asp | Ser | Ile | Leu | Ile | Ala | Ile | Ser |
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| Tyr | Gly | Phe | Ile | Leu | His | Ala | Val | Phe | His | Leu | Pro | Ser | His | Asp | Ala |
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| Gln | His | Lys | Ala | Leu | Ser | Thr | Cys | Gly | Ser | His | Ile | Gly | Ile | Thr | Leu |
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| Val | Phe | Tyr | Ile | Pro | Ala | Phe | Phe | Ser | Phe | Leu | Thr | His | Arg | Phe | Gly |
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Val Leu Val Pro Pro Val Leu Asn Pro Ile Leu Tyr Gly Val Arg Thr
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Gly Leu Thr Asn His Gln Glu Leu Gln Ile Leu Leu Phe Met Leu Phe
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Leu Ala Ile Tyr Met Val Thr Val Ala Gly Asn Leu Ser Met Ile Ala
35 40 45

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Leu Ile Gln Ala Asn Ala Arg Leu His Thr Pro Met Tyr Phe Phe Leu
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65 70 75

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Lys Met Leu Glu Ile Phe Leu Ser Glu Lys Lys Ser Ile Ser Tyr Pro
80 85 90

gcc tgt ctt gtt cag tgt tac ctt tat atc acc ttg gta cac gtt gag 336
Ala Cys Leu Val Gln Cys Tyr Leu Tyr Ile Thr Leu Val His Val Glu
95 100 105 110

atc tac atc ctg gct gtg atg gcc ttt gac cag tac atg gcc atc cga 384
Ile Tyr Ile Leu Ala Val Met Ala Phe Asp Gln Tyr Met Ala Ile Arg
115 120 125

aac cct ctg ctt tat ggc agc aaa atg tcc aaa agt gtg tgt tcc ttc 432

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| Thr | Met | Trp | Thr | Tyr | Asn | Leu | Ala | Phe | Cys | Gly | Pro | Asn | Glu | Ile | Asn | | |
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| cac | ttc | tac | tgt | gca | gac | cca | cca | ctg | att | aag | ctg | gct | tgt | tct | gac | 576 | |
| His | Phe | Tyr | Cys | Ala | Asp | Pro | Pro | Leu | Ile | Lys | Leu | Ala | Cys | Ser | Asp | | |
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| acc | tac | aac | aag | gag | ttg | tca | atg | ttt | gtt | gtg | gct | ggc | tgg | aat | ctt | 624 | |
| Thr | Tyr | Asn | Lys | Glu | Leu | Ser | Met | Phe | Val | Val | Ala | Gly | Trp | Asn | Leu | | |
| | | | 195 | | | | | 200 | | | | | | 205 | | | |
| tcg | ttt | tct | ctc | ttt | atc | ata | ttt | att | tcc | tac | ttt | tac | att | ttt | cct | 672 | |
| Ser | Phe | Ser | Leu | Phe | Ile | Ile | Phe | Ile | Ser | Tyr | Phe | Tyr | Ile | Phe | Pro | | |
| | | | 210 | | | | | 215 | | | | | 220 | | | | |
| gct | atc | tta | agg | att | cgc | tct | aca | gag | ggc | agg | caa | aaa | gct | ttt | tct | 720 | |
| Ala | Ile | Leu | Arg | Ile | Arg | Ser | Thr | Glu | Gly | Arg | Gln | Lys | Ala | Phe | Ser | | |
| | | 225 | | | | | 230 | | | | | 235 | | | | | |
| acc | tgt | ggc | tcc | cat | ctg | aca | gct | gtt | act | att | ttc | tat | gca | act | ctg | 768 | |
| Thr | Cys | Gly | Ser | His | Leu | Thr | Ala | Val | Thr | Ile | Phe | Tyr | Ala | Thr | Leu | | |
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| ttc | ttc | atg | tgt | ctc | aga | cct | cca | tca | gaa | gag | tcc | atg | gag | caa | gga | 816 | |
| Phe | Phe | Met | Cys | Leu | Arg | Pro | Pro | Ser | Glu | Glu | Ser | Met | Glu | Gln | Gly | | |
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| Gln | Met | Val | Ala | Val | Leu | Tyr | Thr | Thr | Val | Ile | Pro | Met | Leu | Ile | Pro | | |
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| Thr | Asn | His | Gln | Glu | Leu | Gln | Ile | Leu | Leu | Phe | Met | Leu | Phe | Leu | Ala | | |
| | | 20 | | | | | | 25 | | | | | 30 | | | | |
| Ile | Tyr | Met | Val | Thr | Val | Ala | Gly | Asn | Leu | Ser | Met | Ile | Ala | Leu | Ile | | |
| | 35 | | | | | | 40 | | | | | 45 | | | | | |

| | | | | | | | | | | | | | | | | |
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| ggcgctgcat | aaaatc | atg | gcc | ctt | ttt | tct | gct | aac | agc | ata | ggg | gct | atg | 52 | | |
| | | Met | Ala | Leu | Phe | Ser | Ala | Asn | Ser | Ile | Gly | Ala | Met | | | |
| | | 1 | | | | | 5 | | | | 10 | | | | | |
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| Asn | Asn | Ser | Asp | Thr | Arg | Ile | Ala | Gly | Cys | Phe | Leu | Thr | Gly | Ile | Pro | |
| | | 15 | | | | | 20 | | | | 25 | | | | | |
| ggg | ctg | gag | caa | cta | cat | atc | tgg | ctg | tcc | atc | ccc | ttc | tgc | atc | atg | 148 |
| Gly | Leu | Glu | Gln | Leu | His | Ile | Trp | Leu | Ser | Ile | Pro | Phe | Cys | Ile | Met | |
| | 30 | | | | | 35 | | | | | 40 | | | | | |
| tac | atc | gct | gcc | ctg | gaa | ggc | aat | ggc | atc | cta | att | tgt | gtc | atc | ctc | 196 |
| Tyr | Ile | Ala | Ala | Leu | Glu | Gly | Asn | Gly | Ile | Leu | Ile | Cys | Val | Ile | Leu | |
| | 45 | | | | 50 | | | | 55 | | | | | | 60 | |
| tcc | cag | gca | atc | ctg | cat | gag | ccc | atg | tac | ata | ttc | tta | tct | atg | ctg | 244 |
| Ser | Gln | Ala | Ile | Leu | His | Glu | Pro | Met | Tyr | Ile | Phe | Leu | Ser | Met | Leu | |
| | | | | 65 | | | | | 70 | | | | | 75 | | |
| gcc | agt | gct | gat | gtc | ttg | ctc | tct | acc | acc | acc | atg | cct | aag | gcc | ctg | 292 |
| Ala | Ser | Ala | Asp | Val | Leu | Leu | Ser | Thr | Thr | Thr | Met | Pro | Lys | Ala | Leu | |
| | | | 80 | | | | | 85 | | | | | 90 | | | |
| gcc | aat | ttg | tgg | cta | ggg | tat | agc | cac | att | tcc | ttt | gat | ggc | tgc | ctc | 340 |
| Ala | Asn | Leu | Trp | Leu | Gly | Tyr | Ser | His | Ile | Ser | Phe | Asp | Gly | Cys | Leu | |
| | 95 | | | | | | 100 | | | | | 105 | | | | |
| act | cag | atg | ttc | ttc | att | cac | ttc | ctc | ttc | att | cac | tct | gct | gtc | ctg | 388 |
| Thr | Gln | Met | Phe | Phe | Ile | His | Phe | Leu | Phe | Ile | His | Ser | Ala | Val | Leu | |
| | 110 | | | | | 115 | | | | | 120 | | | | | |
| ctg | gcc | atg | gcc | ttt | gac | cgc | tat | gtg | gcc | atc | tgc | tcc | ccc | ctg | cga | 436 |
| Leu | Ala | Met | Ala | Phe | Asp | Arg | Tyr | Val | Ala | Ile | Cys | Ser | Pro | Leu | Arg | |
| | 125 | | | | 130 | | | | | 135 | | | | | 140 | |
| tat | gtc | aca | atc | ctc | aca | agc | aag | gtc | att | ggg | aag | atc | gtc | act | gcc | 484 |
| Tyr | Val | Thr | Ile | Leu | Thr | Ser | Lys | Val | Ile | Gly | Lys | Ile | Val | Thr | Ala | |
| | | | | 145 | | | | 150 | | | | | | 155 | | |
| acc | ctg | agc | cgc | agc | ttc | atc | att | atg | ttt | cca | tcc | atc | ttt | ctc | ctt | 532 |
| Thr | Leu | Ser | Arg | Ser | Phe | Ile | Ile | Met | Phe | Pro | Ser | Ile | Phe | Leu | Leu | |
| | | | 160 | | | | | 165 | | | | | 170 | | | |
| gag | cac | ctg | cac | tat | tgc | cag | atc | aac | atc | att | gca | cac | aca | ttt | tgt | 580 |
| Glu | His | Leu | His | Tyr | Cys | Gln | Ile | Asn | Ile | Ile | Ala | His | Thr | Phe | Cys | |
| | 175 | | | | | 180 | | | | | 185 | | | | | |
| gag | cac | atg | ggc | att | gcc | cat | ctg | tcc | tgt | tct | gat | atc | tcc | atc | aat | 628 |
| Glu | His | Met | Gly | Ile | Ala | His | Leu | Ser | Cys | Ser | Asp | Ile | Ser | Ile | Asn | |
| | 190 | | | | | 195 | | | | | 200 | | | | | |
| gtc | tgg | tat | ggg | ttg | gca | gct | gct | ctt | ctc | tcc | aca | ggc | ctg | gac | atc | 676 |
| Val | Trp | Tyr | Gly | Leu | Ala | Ala | Ala | Leu | Leu | Ser | Thr | Gly | Leu | Asp | Ile | |
| | 205 | | | | 210 | | | | | 215 | | | | | 220 | |
| atg | ctt | att | act | gtt | tcc | tac | atc | cac | atc | ctc | caa | gca | gtc | ttc | cgc | 724 |

Met Leu Ile Thr Val Ser Tyr Ile His Ile Leu Gln Ala Val Phe Arg
 225 230 235

ctc ctt tct caa gat gcc cgc tcc aag gcc ctg agt acc tgt gga tcc 772
 Leu Leu Ser Gln Asp Ala Arg Ser Lys Ala Leu Ser Thr Cys Gly Ser
 240 245 250

cat atc tgt gtc atc cta ctc ttc tat gtc cct gcc ctt ttt tct gtc 820
 His Ile Cys Val Ile Leu Leu Phe Tyr Val Pro Ala Leu Phe Ser Val
 255 260 265

ttt gcc tac agg ttt ggt ggg aga agc atc cca tgc tat gtc cat att 868
 Phe Ala Tyr Arg Phe Gly Gly Arg Ser Ile Pro Cys Tyr Val His Ile
 270 275 280

ctc ctg gcc agc ctc tac gtt gtc att cct cct atg ctc aat ccc gtt 916
 Leu Leu Ala Ser Leu Tyr Val Val Ile Pro Pro Met Leu Asn Pro Val
 285 290 295 300

att tat gga gtg agg act aag cca ata ctg gaa ggg gct aag cag atg 964
 Ile Tyr Gly Val Arg Thr Lys Pro Ile Leu Glu Gly Ala Lys Gln Met
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 35 40 45
 Leu Glu Gly Asn Gly Ile Leu Ile Cys Val Ile Leu Ser Gln Ala Ile
 50 55 60
 Leu His Glu Pro Met Tyr Ile Phe Leu Ser Met Leu Ala Ser Ala Asp
 65 70 75 80
 Val Leu Leu Ser Thr Thr Thr Met Pro Lys Ala Leu Ala Asn Leu Trp
 85 90 95
 Leu Gly Tyr Ser His Ile Ser Phe Asp Gly Cys Leu Thr Gln Met Phe
 100 105 110
 Phe Ile His Phe Leu Phe Ile His Ser Ala Val Leu Leu Ala Met Ala
 115 120 125

Phe Asp Arg Tyr Val Ala Ile Cys Ser Pro Leu Arg Tyr Val Thr Ile
 130 135 140
 Leu Thr Ser Lys Val Ile Gly Lys Ile Val Thr Ala Thr Leu Ser Arg
 145 150 155 160
 Ser Phe Ile Ile Met Phe Pro Ser Ile Phe Leu Leu Glu His Leu His
 165 170 175
 Tyr Cys Gln Ile Asn Ile Ile Ala His Thr Phe Cys Glu His Met Gly
 180 185 190
 Ile Ala His Leu Ser Cys Ser Asp Ile Ser Ile Asn Val Trp Tyr Gly
 195 200 205
 Leu Ala Ala Ala Leu Leu Ser Thr Gly Leu Asp Ile Met Leu Ile Thr
 210 215 220
 Val Ser Tyr Ile His Ile Leu Gln Ala Val Phe Arg Leu Leu Ser Gln
 225 230 235 240
 Asp Ala Arg Ser Lys Ala Leu Ser Thr Cys Gly Ser His Ile Cys Val
 245 250 255
 Ile Leu Leu Phe Tyr Val Pro Ala Leu Phe Ser Val Phe Ala Tyr Arg
 260 265 270
 Phe Gly Gly Arg Ser Ile Pro Cys Tyr Val His Ile Leu Leu Ala Ser
 275 280 285
 Leu Tyr Val Val Ile Pro Pro Met Leu Asn Pro Val Ile Tyr Gly Val
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 Arg Thr Lys Pro Ile Leu Glu Gly Ala Lys Gln Met Phe Ser Asn Leu
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 Ala Lys Gly Ser Lys
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 1 5 10
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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asn | Asn | Ser | Asp | Thr | Arg | Ile | Ala | Gly | Cys | Phe | Leu | Thr | Gly | Ile | Pro | | |
| | | 15 | | | | | 20 | | | | | 25 | | | | | |
| ggg | ctg | gag | caa | cta | cat | atc | tgg | ctg | tcc | atc | ccc | ttc | tgc | atc | atg | 145 | |
| Gly | Leu | Glu | Gln | Leu | His | Ile | Trp | Leu | Ser | Ile | Pro | Phe | Cys | Ile | Met | | |
| | 30 | | | | | 35 | | | | 40 | | | | | | | |
| tac | atc | act | gcc | ctg | gaa | ggc | aat | ggc | atc | cta | att | tgt | gtc | atc | ctc | 193 | |
| Tyr | Ile | Thr | Ala | Leu | Glu | Gly | Asn | Gly | Ile | Leu | Ile | Cys | Val | Ile | Leu | | |
| | 45 | | | | 50 | | | | 55 | | | | | | 60 | | |
| tcc | cag | gca | atc | ctg | cat | gag | ccc | atg | tac | ata | ttc | tta | tct | atg | ctg | 241 | |
| Ser | Gln | Ala | Ile | Leu | His | Glu | Pro | Met | Tyr | Ile | Phe | Leu | Ser | Met | Leu | | |
| | | | | 65 | | | | 70 | | | | | | 75 | | | |
| gcc | agt | gct | gat | gtc | ttg | ctc | tct | acc | acc | acc | atg | cct | aag | gcc | ctg | 289 | |
| Ala | Ser | Ala | Asp | Val | Leu | Leu | Ser | Thr | Thr | Thr | Met | Pro | Lys | Ala | Leu | | |
| | | | 80 | | | | | 85 | | | | | 90 | | | | |
| gcc | aat | ttg | tgg | cta | ggt | tat | agc | ctc | att | tcc | ttt | gat | ggc | tgc | ctc | 337 | |
| Ala | Asn | Leu | Trp | Leu | Gly | Tyr | Ser | Leu | Ile | Ser | Phe | Asp | Gly | Cys | Leu | | |
| | 95 | | | | | 100 | | | | | | 105 | | | | | |
| act | cag | atg | ttc | ttc | att | cac | ttc | ctc | ttc | att | cac | tct | gct | gtc | ctg | 385 | |
| Thr | Gln | Met | Phe | Phe | Ile | His | Phe | Leu | Phe | Ile | His | Ser | Ala | Val | Leu | | |
| | 110 | | | | | 115 | | | | | | 120 | | | | | |
| ctg | gcc | atg | gcc | ttt | gac | cgc | tat | gtg | gcc | atc | tgc | tcc | ccc | ctg | cga | 433 | |
| Leu | Ala | Met | Ala | Phe | Asp | Arg | Tyr | Val | Ala | Ile | Cys | Ser | Pro | Leu | Arg | | |
| | 125 | | | | 130 | | | | | 135 | | | | | 140 | | |
| tat | gtc | aca | atc | ctc | aca | agc | aag | gtc | att | ggg | aag | atc | gtc | act | gcc | 481 | |
| Tyr | Val | Thr | Ile | Leu | Thr | Ser | Lys | Val | Ile | Gly | Lys | Ile | Val | Thr | Ala | | |
| | | | | 145 | | | | 150 | | | | | | 155 | | | |
| gcc | ctg | agc | cac | agc | ttc | atc | att | atg | ttt | cca | tcc | atc | ttt | ctc | ctt | 529 | |
| Ala | Leu | Ser | His | Ser | Phe | Ile | Ile | Met | Phe | Pro | Ser | Ile | Phe | Leu | Leu | | |
| | | | 160 | | | | | 165 | | | | | 170 | | | | |
| gag | cac | ctg | cac | tat | tgc | cag | atc | aat | atc | att | gca | cac | aca | ttt | tgt | 577 | |
| Glu | His | Leu | His | Tyr | Cys | Gln | Ile | Asn | Ile | Ile | Ala | His | Thr | Phe | Cys | | |
| | | 175 | | | | 180 | | | | | | 185 | | | | | |
| gag | cac | atg | ggc | att | gcc | cat | ctg | tcc | tgt | tct | gat | atc | tcc | atc | aat | 625 | |
| Glu | His | Met | Gly | Ile | Ala | His | Leu | Ser | Cys | Ser | Asp | Ile | Ser | Ile | Asn | | |
| | | 190 | | | | 195 | | | | | 200 | | | | | | |
| gtc | tgg | tat | ggg | ttg | gca | gct | gct | ctt | ctc | tcc | aca | ggc | cta | gac | atc | 673 | |
| Val | Trp | Tyr | Gly | Leu | Ala | Ala | Ala | Leu | Leu | Ser | Thr | Gly | Leu | Asp | Ile | | |
| | 205 | | | | 210 | | | | | 215 | | | | | 220 | | |
| atg | ctt | att | act | gtt | tcc | tac | atc | cac | atc | ctc | caa | gca | gtc | ttc | cgc | 721 | |
| Met | Leu | Ile | Thr | Val | Ser | Tyr | Ile | His | Ile | Leu | Gln | Ala | Val | Phe | Arg | | |
| | | | | 225 | | | | | 230 | | | | | 235 | | | |
| ctc | ctt | tct | caa | gat | gcc | cgc | tcc | aag | gcc | ctg | agt | acc | tgt | gga | tcc | 769 | |
| Leu | Leu | Ser | Gln | Asp | Ala | Arg | Ser | Lys | Ala | Leu | Ser | Thr | Cys | Gly | Ser | | |

| 240 | 245 | 250 | |
|---|-----|-----|-----|
| cat atc tgt gtc atc cta ctc ttc tat gtc cct gcg ctt ttt tct gtc | | | 817 |
| His Ile Cys Val Ile Leu Leu Phe Tyr Val Pro Ala Leu Phe Ser Val | | | |
| 255 | 260 | 265 | |
| ttt gcc tac agg ttt ggt ggg aga agc gtc cca tgc tat gtc cat att | | | 865 |
| Phe Ala Tyr Arg Phe Gly Gly Arg Ser Val Pro Cys Tyr Val His Ile | | | |
| 270 | 275 | 280 | |
| ctc ctg gcc agc ctc tac gtt gtc att cct cct atg ctc aat ccc gtt | | | 913 |
| Leu Leu Ala Ser Leu Tyr Val Val Ile Pro Pro Met Leu Asn Pro Val | | | |
| 285 | 290 | 295 | 300 |
| att tat gga gtg agg act aag cca ata ctg gaa ggg gct aag cag atg | | | 961 |
| Ile Tyr Gly Val Arg Thr Lys Pro Ile Leu Glu Gly Ala Lys Gln Met | | | |
| 305 | 310 | 315 | |
| ttt tca aat ctt gcc aaa gga tct aaa taaatgctt | | | 997 |
| Phe Ser Asn Leu Ala Lys Gly Ser Lys | | | |
| 320 | 325 | | |

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 Leu His Ile Trp Leu Ser Ile Pro Phe Cys Ile Met Tyr Ile Thr Ala
 35 40 45
 Leu Glu Gly Asn Gly Ile Leu Ile Cys Val Ile Leu Ser Gln Ala Ile
 50 55 60
 Leu His Glu Pro Met Tyr Ile Phe Leu Ser Met Leu Ala Ser Ala Asp
 65 70 75 80
 Val Leu Leu Ser Thr Thr Thr Met Pro Lys Ala Leu Ala Asn Leu Trp
 85 90 95
 Leu Gly Tyr Ser Leu Ile Ser Phe Asp Gly Cys Leu Thr Gln Met Phe
 100 105 110
 Phe Ile His Phe Leu Phe Ile His Ser Ala Val Leu Leu Ala Met Ala
 115 120 125
 Phe Asp Arg Tyr Val Ala Ile Cys Ser Pro Leu Arg Tyr Val Thr Ile
 130 135 140
 Leu Thr Ser Lys Val Ile Gly Lys Ile Val Thr Ala Ala Leu Ser His

| | | | | | | |
|---|-----|-----|--|-----|--|-----|
| 145 | | 150 | | 155 | | 160 |
| Ser Phe Ile Ile Met Phe Pro Ser Ile Phe Leu Leu Glu His Leu His | | | | | | |
| | 165 | | | 170 | | 175 |
| Tyr Cys Gln Ile Asn Ile Ile Ala His Thr Phe Cys Glu His Met Gly | | | | | | |
| | 180 | | | 185 | | 190 |
| Ile Ala His Leu Ser Cys Ser Asp Ile Ser Ile Asn Val Trp Tyr Gly | | | | | | |
| | 195 | | | 200 | | 205 |
| Leu Ala Ala Ala Leu Leu Ser Thr Gly Leu Asp Ile Met Leu Ile Thr | | | | | | |
| | 210 | | | 215 | | 220 |
| Val Ser Tyr Ile His Ile Leu Gln Ala Val Phe Arg Leu Leu Ser Gln | | | | | | |
| | 225 | | | 230 | | 235 |
| Asp Ala Arg Ser Lys Ala Leu Ser Thr Cys Gly Ser His Ile Cys Val | | | | | | |
| | 245 | | | 250 | | 255 |
| Ile Leu Leu Phe Tyr Val Pro Ala Leu Phe Ser Val Phe Ala Tyr Arg | | | | | | |
| | 260 | | | 265 | | 270 |
| Phe Gly Gly Arg Ser Val Pro Cys Tyr Val His Ile Leu Leu Ala Ser | | | | | | |
| | 275 | | | 280 | | 285 |
| Leu Tyr Val Val Ile Pro Pro Met Leu Asn Pro Val Ile Tyr Gly Val | | | | | | |
| | 290 | | | 295 | | 300 |
| Arg Thr Lys Pro Ile Leu Glu Gly Ala Lys Gln Met Phe Ser Asn Leu | | | | | | |
| | 305 | | | 310 | | 315 |
| Ala Lys Gly Ser Lys | | | | | | |
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 Asp Met Phe Val Leu Ile Gly Val Pro Gly Leu Lys Glu Leu His Val
 15 20 25

tgg atc tcc atc ccc ttc tgt ctg atg tac ctg gtg gct gtg tca gga 149
 Trp Ile Ser Ile Pro Phe Cys Leu Met Tyr Leu Val Ala Val Ser Gly

| 30 | 35 | 40 | |
|---|-----|-----|-----|
| aat ggt ctc ctt gtc tgt gtg gca gtg gag cac agt ctt cat gaa | | | 197 |
| Asn Gly Leu Leu Val Cys Val Val Ala Val Glu His Ser Leu His Glu | | | |
| 45 | 50 | 55 | |
| cct atg tac ctt ttc ctc tcc atg ctg gca ttt tgg gat ctg att cta | | | 245 |
| Pro Met Tyr Leu Phe Leu Ser Met Leu Ala Phe Trp Asp Leu Ile Leu | | | |
| 60 | 65 | 70 | 75 |
| tcc aca tct gca gta ccc aaa gcc ttg agc att ttc tgg ttt gat gat | | | 293 |
| Ser Thr Ser Ala Val Pro Lys Ala Leu Ser Ile Phe Trp Phe Asp Asp | | | |
| | 80 | 85 | 90 |
| gtg gac atc tcc ttt ggt ggc tgt gtc act cag ctc ttt ttt atg cat | | | 341 |
| Val Asp Ile Ser Phe Gly Gly Cys Val Thr Gln Leu Phe Phe Met His | | | |
| | 95 | 100 | 105 |
| ttt gcc ttt gta gcg gag tca ggc att ctc ttg acc atg gct ttc gac | | | 389 |
| Phe Ala Phe Val Ala Glu Ser Gly Ile Leu Leu Thr Met Ala Phe Asp | | | |
| | 110 | 115 | 120 |
| cgc tat gtg gcc atc tgc tac cca ttg agg tat agc acc ata ctt agc | | | 437 |
| Arg Tyr Val Ala Ile Cys Tyr Pro Leu Arg Tyr Ser Thr Ile Leu Ser | | | |
| | 125 | 130 | 135 |
| cac agt gtt att ggc aaa att ggg ggt gtc gtg gtg ttc agg agt ttt | | | 485 |
| His Ser Val Ile Gly Lys Ile Gly Gly Val Val Val Phe Arg Ser Phe | | | |
| 140 | 145 | 150 | 155 |
| gca act gtc ttc tcc atc gtc ttc ctt gtg aag cgt ctg ccc ttc tgc | | | 533 |
| Ala Thr Val Phe Ser Ile Val Phe Leu Val Lys Arg Leu Pro Phe Cys | | | |
| | 160 | 165 | 170 |
| cgg aca aac atc att gcc cac acc ttc tgt gaa cac atg ggg ctg gca | | | 581 |
| Arg Thr Asn Ile Ile Ala His Thr Phe Cys Glu His Met Gly Leu Ala | | | |
| | 175 | 180 | 185 |
| aag cta ggt tgt tct gaa atc acc atc aat att tgg tat gga atc tct | | | 629 |
| Lys Leu Gly Cys Ser Glu Ile Thr Ile Asn Ile Trp Tyr Gly Ile Ser | | | |
| | 190 | 195 | 200 |
| gta cca cta ctc agt gtt acg tta gat atg gtg aca ata gtc atc tcc | | | 677 |
| Val Pro Leu Leu Ser Val Thr Leu Asp Met Val Thr Ile Val Ile Ser | | | |
| | 205 | 210 | 215 |
| cag ggg ctc ata gtt caa gca gtc ttc agg ctg ccc tcc ctt ggt gct | | | 725 |
| Gln Gly Leu Ile Val Gln Ala Val Phe Arg Leu Pro Ser Leu Gly Ala | | | |
| 220 | 225 | 230 | 235 |
| tgg atg aaa gca ctc agc acc tgt ggt tcc cat ggc agt gtc atc ctc | | | 773 |
| Trp Met Lys Ala Leu Ser Thr Cys Gly Ser His Gly Ser Val Ile Leu | | | |
| | 240 | 245 | 250 |
| atg ttc tgc ctt cca gga att ttc act gtc att gtt cag cgc ttt gcc | | | 821 |
| Met Phe Cys Leu Pro Gly Ile Phe Thr Val Ile Val Gln Arg Phe Ala | | | |
| | 255 | 260 | 265 |

cga aaa ttt ccc aag tat gtc cac atc ctg ctg gcc aat ctc tat gtt 869
 Arg Lys Phe Pro Lys Tyr Val His Ile Leu Leu Ala Asn Leu Tyr Val
 270 275 280
 ctt gtt ccc ccc atg atg aac cca att atc tat gga gta aag act aaa 917
 Leu Val Pro Pro Met Met Asn Pro Ile Ile Tyr Gly Val Lys Thr Lys
 285 290 295
 cag att cag aaa ggg gtt gcc ctt gtg ttt tct cca aaa gga aaa tgt 965
 Gln Ile Gln Lys Gly Val Ala Leu Val Phe Ser Pro Lys Gly Lys Cys
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 tgc tgagg 973
 Cys

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 <213> Homo sapiens

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 20 25 30
 Phe Cys Leu Met Tyr Leu Val Ala Val Ser Gly Asn Gly Leu Leu Val
 35 40 45
 Cys Val Val Ala Val Glu His Ser Leu His Glu Pro Met Tyr Leu Phe
 50 55 60
 Leu Ser Met Leu Ala Phe Trp Asp Leu Ile Leu Ser Thr Ser Ala Val
 65 70 75 80
 Pro Lys Ala Leu Ser Ile Phe Trp Phe Asp Asp Val Asp Ile Ser Phe
 85 90 95
 Gly Gly Cys Val Thr Gln Leu Phe Phe Met His Phe Ala Phe Val Ala
 100 105 110
 Glu Ser Gly Ile Leu Leu Thr Met Ala Phe Asp Arg Tyr Val Ala Ile
 115 120 125
 Cys Tyr Pro Leu Arg Tyr Ser Thr Ile Leu Ser His Ser Val Ile Gly
 130 135 140
 Lys Ile Gly Gly Val Val Val Phe Arg Ser Phe Ala Thr Val Phe Ser
 145 150 155 160
 Ile Val Phe Leu Val Lys Arg Leu Pro Phe Cys Arg Thr Asn Ile Ile
 165 170 175
 Ala His Thr Phe Cys Glu His Met Gly Leu Ala Lys Leu Gly Cys Ser

| 180 | | | | | | | | | | 185 | | | | | | | | | | 190 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Glu | Ile | Thr | Ile | Asn | Ile | Trp | Tyr | Gly | Ile | Ser | Val | Pro | Leu | Leu | Ser | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Val | Thr | Leu | Asp | Met | Val | Thr | Ile | Val | Ile | Ser | Gln | Gly | Leu | Ile | Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gln | Ala | Val | Phe | Arg | Leu | Pro | Ser | Leu | Gly | Ala | Trp | Met | Lys | Ala | Leu | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ser | Thr | Cys | Gly | Ser | His | Gly | Ser | Val | Ile | Leu | Met | Phe | Cys | Leu | Pro | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gly | Ile | Phe | Thr | Val | Ile | Val | Gln | Arg | Phe | Ala | Arg | Lys | Phe | Pro | Lys | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tyr | Val | His | Ile | Leu | Leu | Ala | Asn | Leu | Tyr | Val | Leu | Val | Pro | Pro | Met | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Met | Asn | Pro | Ile | Ile | Tyr | Gly | Val | Lys | Thr | Lys | Gln | Ile | Gln | Lys | Gly | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Val | Ala | Leu | Val | Phe | Ser | Pro | Lys | Gly | Lys | Cys | Cys | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

<210> 13
 <211> 937
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (17) .. (934)

<400> 13
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 Met Thr Leu Gln Gly Gln Glu Phe Ile Leu Leu Gly
 1 5 10

tta aca gac cag cct gag atc caa ttg ccc ctg ttt ttc ctg ttc ttg 100
 Leu Thr Asp Gln Pro Glu Ile Gln Leu Pro Leu Phe Phe Leu Phe Leu
 15 20 25

gtg aac tat atg acc acc atg gtg ggc aac ttg agt tta att aat cta 148
 Val Asn Tyr Met Thr Thr Met Val Gly Asn Leu Ser Leu Ile Asn Leu
 30 35 40

att tgc ctg aat tca cac ctt cac act ccc atg tat ttt ttc ctt ttc 196
 Ile Cys Leu Asn Ser His Leu His Thr Pro Met Tyr Phe Phe Leu Phe
 45 50 55 60

aat ctg tcc ttc att gat ctc tgt tat tca ttt gtc ttt acc ccc aaa 244
 Asn Leu Ser Phe Ile Asp Leu Cys Tyr Ser Phe Val Phe Thr Pro Lys
 65 70 75

| | |
|---|-----|
| atg ctg atg agc ttt att tca gag agg aac atc atc tcc ttt cca gga | 292 |
| Met Leu Met Ser Phe Ile Ser Glu Arg Asn Ile Ile Ser Phe Pro Gly | |
| 80 85 90 | |
| tgc ata act cag ctc ttt ttc ttc tgc ttt ttt gtc cac tct gag tgc | 340 |
| Cys Ile Thr Gln Leu Phe Phe Phe Cys Phe Phe Val His Ser Glu Cys | |
| 95 100 105 | |
| tat gtg ctg aca gcc atg gcc tat gat cgc tat gtg gcc atc tgc aaa | 388 |
| Tyr Val Leu Thr Ala Met Tyr Asp Arg Tyr Val Ala Ile Cys Lys | |
| 110 115 120 | |
| ccc ctt ctg tac atg gtc acc acg tcc cct cag atc tgt tct cta ctg | 436 |
| Pro Leu Leu Tyr Met Val Thr Thr Ser Pro Gln Ile Cys Ser Leu Leu | |
| 125 130 135 140 | |
| atg ctt ggt tca tat gtg atg ggg ttt gct ggg gcc atg gtc cac aca | 484 |
| Met Leu Gly Ser Tyr Val Met Gly Phe Ala Gly Ala Met Val His Thr | |
| 145 150 155 | |
| gag tgt atg atg aag ctc atc ttt tgt gac tcc aac gtc atc aac cat | 532 |
| Glu Cys Met Met Lys Leu Ile Phe Cys Asp Ser Asn Val Ile Asn His | |
| 160 165 170 | |
| tac atg tgt gac atc ttc cca ctg ctc cag ctc tcc tgc agc agc acc | 580 |
| Tyr Met Cys Asp Ile Phe Pro Leu Leu Gln Leu Ser Cys Ser Ser Thr | |
| 175 180 185 | |
| cag gcc aat gag ctg gtg atg tct gtt att gta ggc aca gtt gtt ata | 628 |
| Gln Ala Asn Glu Leu Val Met Ser Val Ile Val Gly Thr Val Val Ile | |
| 190 195 200 | |
| gta tca agc ctc att atc tta atc tct tat gct ttg att ctt ttc aat | 676 |
| Val Ser Ser Leu Ile Ile Leu Ile Ser Tyr Ala Leu Ile Leu Phe Asn | |
| 205 210 215 220 | |
| atc ctt cac atg tcc tca gcc gag ggt tgg ttc aaa gcc atc ggt acc | 724 |
| Ile Leu His Met Ser Ser Ala Glu Gly Trp Phe Lys Ala Ile Gly Thr | |
| 225 230 235 | |
| tgt ggc tcc cac ata ata act gtt ggc cta ttc tat gaa ttt ggg ctg | 772 |
| Cys Gly Ser His Ile Ile Thr Val Gly Leu Phe Tyr Glu Phe Gly Leu | |
| 240 245 250 | |
| atc act cat gtt aag tta tca tct gat tgg tat atg ggt cag ggg aag | 820 |
| Ile Thr His Val Lys Leu Ser Ser Asp Trp Tyr Met Gly Gln Gly Lys | |
| 255 260 265 | |
| ttt ctc tca gtg ttt tac acg aat gtg gta ccc atg ctg aac ccc ctc | 868 |
| Phe Leu Ser Val Phe Tyr Thr Asn Val Val Pro Met Leu Asn Pro Leu | |
| 270 275 280 | |
| att tat agc ctc agg aac aag gat gtc aaa ctt gct cta aag gaa acc | 916 |
| Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Leu Ala Leu Lys Glu Thr | |
| 285 290 295 300 | |

cta aat aaa att aca aac tga
 Leu Asn Lys Ile Thr Asn
 305

937

<210> 14
 <211> 306
 <212> PRT
 <213> Homo sapiens

<400> 14

Met Thr Leu Gln Gly Gln Glu Phe Ile Leu Leu Gly Leu Thr Asp Gln
 1 5 10 15
 Pro Glu Ile Gln Leu Pro Leu Phe Phe Leu Phe Leu Val Asn Tyr Met
 20 25 30
 Thr Thr Met Val Gly Asn Leu Ser Leu Ile Asn Leu Ile Cys Leu Asn
 35 40 45
 Ser His Leu His Thr Pro Met Tyr Phe Phe Leu Phe Asn Leu Ser Phe
 50 55 60
 Ile Asp Leu Cys Tyr Ser Phe Val Phe Thr Pro Lys Met Leu Met Ser
 65 70 75 80
 Phe Ile Ser Glu Arg Asn Ile Ile Ser Phe Pro Gly Cys Ile Thr Gln
 85 90 95
 Leu Phe Phe Phe Cys Phe Phe Val His Ser Glu Cys Tyr Val Leu Thr
 100 105 110
 Ala Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Lys Pro Leu Leu Tyr
 115 120 125
 Met Val Thr Thr Ser Pro Gln Ile Cys Ser Leu Leu Met Leu Gly Ser
 130 135 140
 Tyr Val Met Gly Phe Ala Gly Ala Met Val His Thr Glu Cys Met Met
 145 150 155 160
 Lys Leu Ile Phe Cys Asp Ser Asn Val Ile Asn His Tyr Met Cys Asp
 165 170 175
 Ile Phe Pro Leu Leu Gln Leu Ser Cys Ser Ser Thr Gln Ala Asn Glu
 180 185 190
 Leu Val Met Ser Val Ile Val Gly Thr Val Val Ile Val Ser Ser Leu
 195 200 205
 Ile Ile Leu Ile Ser Tyr Ala Leu Ile Leu Phe Asn Ile Leu His Met
 210 215 220
 Ser Ser Ala Glu Gly Trp Phe Lys Ala Ile Gly Thr Cys Gly Ser His
 225 230 235 240
 Ile Ile Thr Val Gly Leu Phe Tyr Glu Phe Gly Leu Ile Thr His Val

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 245 | | 250 | | 255 | | | | | | | | | | |
| Lys | Leu | Ser | Ser | Asp | Trp | Tyr | Met | Gly | Gln | Gly | Lys | Phe | Leu | Ser | Val |
| | 260 | | | | | | | 265 | | | | | 270 | | |
| Phe | Tyr | Thr | Asn | Val | Val | Pro | Met | Leu | Asn | Pro | Leu | Ile | Tyr | Ser | Leu |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Arg | Asn | Lys | Asp | Val | Lys | Leu | Ala | Leu | Lys | Glu | Thr | Leu | Asn | Lys | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Thr | Asn | | | | | | | | | | | | | | |
| 305 | | | | | | | | | | | | | | | |

<210> 15
 <211> 958
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (8)..(946)

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| <400> 15 | |
| acaaaaa atg ctg gct aga aac aac tcc tta gtg act gaa ttt att ctt | 49 |
| Met Leu Ala Arg Asn Asn Ser Leu Val Thr Glu Phe Ile Leu | |
| 1 5 10 | |
| gct gga tta aca gat cat cca gag ttc cgg caa ccc ctc ttt ttc ctg | 97 |
| Ala Gly Leu Thr Asp His Pro Glu Phe Arg Gln Pro Leu Phe Phe Leu | |
| 15 20 25 30 | |
| ttt cta gtg atc tac att gtc acc atg gta ggc aac ctt ggc ttg atc | 145 |
| Phe Leu Val Ile Tyr Ile Val Thr Met Val Gly Asn Leu Gly Leu Ile | |
| 35 40 45 | |
| act ctt ttc ggt cta aat tct cac ctc cac aca cca atg tac tat ttc | 193 |
| Thr Leu Phe Gly Leu Asn Ser His Leu His Thr Pro Met Tyr Tyr Phe | |
| 50 55 60 | |
| ctc ttc aat ctc tcc ttc att gat ctc tgt tac tcc tct gtt ttc act | 241 |
| Leu Phe Asn Leu Ser Phe Ile Asp Leu Cys Tyr Ser Ser Val Phe Thr | |
| 65 70 75 | |
| ccc aaa atg cta atg aac ttt gtg tca aaa aag aat att atc tcc aat | 289 |
| Pro Lys Met Leu Met Asn Phe Val Ser Lys Lys Asn Ile Ile Ser Asn | |
| 80 85 90 | |
| gtt ggg tgc atg act cgg ctg ttt ttc ttt ctc ttt ttc gtc atc tct | 337 |
| Val Gly Cys Met Thr Arg Leu Phe Phe Phe Leu Phe Phe Val Ile Ser | |
| 95 100 105 110 | |
| gaa tgt tac atg ttg act tca atg gca tat gat cgc tat gtg gcc atc | 385 |
| Glu Cys Tyr Met Leu Thr Ser Met Ala Tyr Asp Arg Tyr Val Ala Ile | |
| 115 120 125 | |

| | |
|---|-----|
| tgt aat cca ttg ctg tat aag gtc acc atg tcc cat cag gtc tgt tct | 433 |
| Cys Asn Pro Leu Leu Tyr Lys Val Thr Met Ser His Gln Val Cys Ser | |
| 130 135 140 | |
| atg ctc act ttt gct gct tac ata atg gga ttg gct gga gcc acg gcc | 481 |
| Met Leu Thr Phe Ala Ala Tyr Ile Met Gly Leu Ala Gly Ala Thr Ala | |
| 145 150 155 | |
| cac acc ggg tgc atg ctt aga ctc acc ttc tgc agt gct aat atc atc | 529 |
| His Thr Gly Cys Met Leu Arg Leu Thr Phe Cys Ser Ala Asn Ile Ile | |
| 160 165 170 | |
| aac cat tac ttg tgt gac ata ctc ccc ctc ctc cag ctt tcc tgc acc | 577 |
| Asn His Tyr Leu Cys Asp Ile Leu Pro Leu Leu Gln Leu Ser Cys Thr | |
| 175 180 185 190 | |
| agc acc tat gtc aac gag gtg gtt gtt ctc att gtt gtg ggt act aat | 625 |
| Ser Thr Tyr Val Asn Glu Val Val Val Leu Ile Val Val Gly Thr Asn | |
| 195 200 205 | |
| atc acg gta ccc agt tgt acc atc ctc att tct tat gtt ttc att gtc | 673 |
| Ile Thr Val Pro Ser Cys Thr Ile Leu Ile Ser Tyr Val Phe Ile Val | |
| 210 215 220 | |
| act agc att ctt cat atc aaa tcc act caa gga aga tca aaa gcc ttc | 721 |
| Thr Ser Ile Leu His Ile Lys Ser Thr Gln Gly Arg Ser Lys Ala Phe | |
| 225 230 235 | |
| agt act tgt agc tct cat gtc att gct ctg tct ctg ttt ttt ggg tca | 769 |
| Ser Thr Cys Ser Ser His Val Ile Ala Leu Ser Leu Phe Phe Gly Ser | |
| 240 245 250 | |
| gcg gca ttc atg tat att aaa tat tct tct gga tct atg gag cag gga | 817 |
| Ala Ala Phe Met Tyr Ile Lys Tyr Ser Ser Gly Ser Met Glu Gln Gly | |
| 255 260 265 270 | |
| aaa gtt tct tct gtt ttc tac act aat gtg gtg ccc atg ctc aat ccc | 865 |
| Lys Val Ser Ser Val Phe Tyr Thr Asn Val Val Pro Met Leu Asn Pro | |
| 275 280 285 | |
| ctc atc tac agt ttg agg aac aag gat gtc aaa gtt gca ctg agg aaa | 913 |
| Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Val Ala Leu Arg Lys | |
| 290 295 300 | |
| gct ctg att aaa att cag agg aga aat ata ttc taattagaag ca | 958 |
| Ala Leu Ile Lys Ile Gln Arg Arg Asn Ile Phe | |
| 305 310 | |

<210> 16

<211> 313

<212> PRT

<213> Homo sapiens

<400> 16

Met Leu Ala Arg Asn Asn Ser Leu Val Thr Glu Phe Ile Leu Ala Gly

| 1 | 5 | 10 | 15 |
|---|-----|-----|-----|
| Leu Thr Asp His Pro Glu Phe Arg Gln Pro Leu Phe Phe Leu Phe Leu | 20 | 25 | 30 |
| Val Ile Tyr Ile Val Thr Met Val Gly Asn Leu Gly Leu Ile Thr Leu | 35 | 40 | 45 |
| Phe Gly Leu Asn Ser His Leu His Thr Pro Met Tyr Tyr Phe Leu Phe | 50 | 55 | 60 |
| Asn Leu Ser Phe Ile Asp Leu Cys Tyr Ser Ser Val Phe Thr Pro Lys | 65 | 70 | 75 |
| Met Leu Met Asn Phe Val Ser Lys Lys Asn Ile Ile Ser Asn Val Gly | 85 | 90 | 95 |
| Cys Met Thr Arg Leu Phe Phe Phe Leu Phe Phe Val Ile Ser Glu Cys | 100 | 105 | 110 |
| Tyr Met Leu Thr Ser Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Asn | 115 | 120 | 125 |
| Pro Leu Leu Tyr Lys Val Thr Met Ser His Gln Val Cys Ser Met Leu | 130 | 135 | 140 |
| Thr Phe Ala Ala Tyr Ile Met Gly Leu Ala Gly Ala Thr Ala His Thr | 145 | 150 | 155 |
| Gly Cys Met Leu Arg Leu Thr Phe Cys Ser Ala Asn Ile Ile Asn His | 165 | 170 | 175 |
| Tyr Leu Cys Asp Ile Leu Pro Leu Leu Gln Leu Ser Cys Thr Ser Thr | 180 | 185 | 190 |
| Tyr Val Asn Glu Val Val Val Leu Ile Val Val Gly Thr Asn Ile Thr | 195 | 200 | 205 |
| Val Pro Ser Cys Thr Ile Leu Ile Ser Tyr Val Phe Ile Val Thr Ser | 210 | 215 | 220 |
| Ile Leu His Ile Lys Ser Thr Gln Gly Arg Ser Lys Ala Phe Ser Thr | 225 | 230 | 235 |
| Cys Ser Ser His Val Ile Ala Leu Ser Leu Phe Phe Gly Ser Ala Ala | 245 | 250 | 255 |
| Phe Met Tyr Ile Lys Tyr Ser Ser Gly Ser Met Glu Gln Gly Lys Val | 260 | 265 | 270 |
| Ser Ser Val Phe Tyr Thr Asn Val Val Pro Met Leu Asn Pro Leu Ile | 275 | 280 | 285 |
| Tyr Ser Leu Arg Asn Lys Asp Val Lys Val Ala Leu Arg Lys Ala Leu | 290 | 295 | 300 |
| Ile Lys Ile Gln Arg Arg Asn Ile Phe | | | |

305

310

<210> 17

<211> 954

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2) .. (943)

<400> 17

g atg gac tca agc tta tgt acc ttc ccc gag gtc gct cat gag ttt atc 49

Met Asp Ser Ser Leu Cys Thr Phe Pro Glu Val Ala His Glu Phe Ile

1

5

10

15

ctg gca ggc ttg aca caa cgc cca gaa ctt caa ctg cca ctc ttc ctc 97

Leu Ala Gly Leu Thr Gln Arg Pro Glu Leu Gln Leu Pro Leu Phe Leu

20

25

30

ctg ttc ctt gga ata tat gtg gtc aca gtg gtg ggg aac ctg ggc atg 145

Leu Phe Leu Gly Ile Tyr Val Val Thr Val Val Gly Asn Leu Gly Met

35

40

45

atc ttc tta att gct ctc agt tct caa ctt tac cct cca gtg tat tat 193

Ile Phe Leu Ile Ala Leu Ser Ser Gln Leu Tyr Pro Pro Val Tyr Tyr

50

55

60

ttt ctc agt cat ttg tct ttc att gat ctc tgc tac tcc tct gtc att 241

Phe Leu Ser His Leu Ser Phe Ile Asp Leu Cys Tyr Ser Ser Val Ile

65

70

75

80

acc cct aag atg ctg gtg aac ttt gtt cca gag gag aac att atc tcc 289

Thr Pro Lys Met Leu Val Asn Phe Val Pro Glu Glu Asn Ile Ile Ser

85

90

95

ttt ctg gaa tgc att act caa ctt tat ttc ttc ctt att ttt gta att 337

Phe Leu Glu Cys Ile Thr Gln Leu Tyr Phe Phe Leu Ile Phe Val Ile

100

105

110

gca gaa ggc tac ctt ctg aca gcc atg gaa tat gac cgt tat gtt gct 385

Ala Glu Gly Tyr Leu Leu Thr Ala Met Glu Tyr Asp Arg Tyr Val Ala

115

120

125

atc tgt cgc cca ctg ctt tac aat att gtc atg tcc cac agg gtc tgt 433

Ile Cys Arg Pro Leu Leu Tyr Asn Ile Val Met Ser His Arg Val Cys

130

135

140

tcc ata atg atg gct gtg gta tac tca ctg ggt ttt ctg tgg gcc aca 481

Ser Ile Met Met Ala Val Tyr Ser Leu Ser Gly Phe Leu Trp Ala Thr

145

150

155

160

gtc cat act acc cgc atg tca gtg ttg tca ttc tgt agg tct cat acg 529

Val His Thr Thr Arg Met Ser Val Leu Ser Phe Cys Arg Ser His Thr

165

170

175

gtc agt cat tat ttt tgt gat att ctc ccc tta ttg act ctg tct tgc 577
 Val Ser His Tyr Phe Cys Asp Ile Leu Pro Leu Leu Thr Leu Ser Cys
 180 185 190
 tcc agc acc cac atc aat gag att ctg ctg ttc att att gga gga gtt 625
 Ser Ser Thr His Ile Asn Glu Ile Leu Leu Phe Ile Ile Gly Gly Val
 195 200 205
 aat acc tta gca act aca ctg gcg gtc ctt atc tct tat gct ttc att 673
 Asn Thr Leu Ala Thr Thr Leu Ala Val Leu Ile Ser Tyr Ala Phe Ile
 210 215 220
 ttc tct agt atc ctt ggt att cat tcc act gag ggg caa tcc aaa gcc 721
 Phe Ser Ser Ile Leu Gly Ile His Ser Thr Glu Gly Gln Ser Lys Ala
 225 230 235 240
 ttt ggc act tgt agc tcc cat ctc ttg gct gtg ggc atc ttt ttt ggg 769
 Phe Gly Thr Cys Ser Ser His Leu Leu Ala Val Gly Ile Phe Phe Gly
 245 250 255
 tct ata aca ttc atg tat ttc aag ccc cct tcc agc act act atg gaa 817
 Ser Ile Thr Phe Met Tyr Phe Lys Pro Pro Ser Ser Thr Thr Met Glu
 260 265 270
 aaa gag aag gtg tct tct gtg ttc tac atc aca ata atc ccc atg ctg 865
 Lys Glu Lys Val Ser Ser Val Phe Tyr Ile Thr Ile Ile Pro Met Leu
 275 280 285
 aat cct cta atc tat agc ctg agg aac aag gat gtg aaa aat gca ctg 913
 Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Asn Ala Leu
 290 295 300
 aag aag atg act agg gga agg cag tca tcc tgacaaagag g 954
 Lys Lys Met Thr Arg Gly Arg Gln Ser Ser
 305 310

<210> 18
 <211> 314
 <212> PRT
 <213> Homo sapiens

<400> 18
 Met Asp Ser Ser Leu Cys Thr Phe Pro Glu Val Ala His Glu Phe Ile
 1 5 10 15
 Leu Ala Gly Leu Thr Gln Arg Pro Glu Leu Gln Leu Pro Leu Phe Leu
 20 25 30
 Leu Phe Leu Gly Ile Tyr Val Val Thr Val Val Gly Asn Leu Gly Met
 35 40 45
 Ile Phe Leu Ile Ala Leu Ser Ser Gln Leu Tyr Pro Pro Val Tyr Tyr
 50 55 60
 Phe Leu Ser His Leu Ser Phe Ile Asp Leu Cys Tyr Ser Ser Val Ile

| 65 | 70 | 75 | 80 |
|---|-----------------------------|-----|-----|
| Thr Pro Lys Met Leu Val Asn Phe Val | Pro Glu Glu Asn Ile Ile Ser | | |
| 85 | 90 | 95 | |
| Phe Leu Glu Cys Ile Thr Gln Leu Tyr Phe Phe Leu Ile Phe Val Ile | | | |
| 100 | 105 | 110 | |
| Ala Glu Gly Tyr Leu Leu Thr Ala Met Glu Tyr Asp Arg Tyr Val Ala | | | |
| 115 | 120 | 125 | |
| Ile Cys Arg Pro Leu Leu Tyr Asn Ile Val Met Ser His Arg Val Cys | | | |
| 130 | 135 | 140 | |
| Ser Ile Met Met Ala Val Val Tyr Ser Leu Gly Phe Leu Trp Ala Thr | | | |
| 145 | 150 | 155 | 160 |
| Val His Thr Thr Arg Met Ser Val Leu Ser Phe Cys Arg Ser His Thr | | | |
| 165 | 170 | 175 | |
| Val Ser His Tyr Phe Cys Asp Ile Leu Pro Leu Leu Thr Leu Ser Cys | | | |
| 180 | 185 | 190 | |
| Ser Ser Thr His Ile Asn Glu Ile Leu Leu Phe Ile Ile Gly Gly Val | | | |
| 195 | 200 | 205 | |
| Asn Thr Leu Ala Thr Thr Leu Ala Val Leu Ile Ser Tyr Ala Phe Ile | | | |
| 210 | 215 | 220 | |
| Phe Ser Ser Ile Leu Gly Ile His Ser Thr Glu Gly Gln Ser Lys Ala | | | |
| 225 | 230 | 235 | 240 |
| Phe Gly Thr Cys Ser Ser His Leu Leu Ala Val Gly Ile Phe Phe Gly | | | |
| 245 | 250 | 255 | |
| Ser Ile Thr Phe Met Tyr Phe Lys Pro Pro Ser Ser Thr Thr Met Glu | | | |
| 260 | 265 | 270 | |
| Lys Glu Lys Val Ser Ser Val Phe Tyr Ile Thr Ile Ile Pro Met Leu | | | |
| 275 | 280 | 285 | |
| Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Asn Ala Leu | | | |
| 290 | 295 | 300 | |
| Lys Lys Met Thr Arg Gly Arg Gln Ser Ser | | | |
| 305 | 310 | | |

<210> 19
 <211> 1011
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (16)..(996)

<400> 19

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| Met Ala Ile Phe Asn Asn Thr Thr Ser Ser Ser Ser | |
| 1 5 10 | |
| aac ttc ctc ctc act gca ttc cct ggg ctg gaa tgt gct cat gtc tgg | 99 |
| Asn Phe Leu Leu Thr Ala Phe Pro Gly Leu Glu Cys Ala His Val Trp | |
| 15 20 25 | |
| atc tcc att cca gtc tgc tgt ctc tac acc att gcc ctc ttg gga aac | 147 |
| Ile Ser Ile Pro Val Cys Cys Leu Tyr Thr Ile Ala Leu Leu Gly Asn | |
| 30 35 40 | |
| agt atg atc ttt ctt gtc atc att act aag cgg aga ctc cac aaa ccc | 195 |
| Ser Met Ile Phe Leu Val Ile Ile Thr Lys Arg Arg Leu His Lys Pro | |
| 45 50 55 60 | |
| atg tat tat ttc ctc tcc atg ctg gca gct gtt gat cta tgt ctg acc | 243 |
| Met Tyr Tyr Phe Leu Ser Met Leu Ala Ala Val Asp Leu Cys Leu Thr | |
| 65 70 75 | |
| att acg acc ctt ccc act gtg ctt ggt gtt ctc tgg ttt cat gcc cgg | 291 |
| Ile Thr Thr Leu Pro Thr Val Leu Gly Val Leu Trp Phe His Ala Arg | |
| 80 85 90 | |
| gag atc agc ttt aaa gct tgc ttc att caa atg ttc ttt gtg cat gct | 339 |
| Glu Ile Ser Phe Lys Ala Cys Phe Ile Gln Met Phe Phe Val His Ala | |
| 95 100 105 | |
| ttc tcc ttg ctg gag tcc tcg gtg ctg gta gcc atg gcc ttt gac cgc | 387 |
| Phe Ser Leu Leu Glu Ser Ser Val Leu Val Ala Met Ala Phe Asp Arg | |
| 110 115 120 | |
| ttc gtg gct atc tgt aac cca ctg aac tat gct act atc ctc aca gac | 435 |
| Phe Val Ala Ile Cys Asn Pro Leu Asn Tyr Ala Thr Ile Leu Thr Asp | |
| 125 130 135 140 | |
| agg atg gtc ctg gtg ata ggg ctg gtc atc tgc att aga cca gca gtt | 483 |
| Arg Met Val Leu Val Ile Gly Leu Val Ile Cys Ile Arg Pro Ala Val | |
| 145 150 155 | |
| ttc tta ctt ccc ctt ctt gta gcc ata aac act gtg tct ttt cat ggg | 531 |
| Phe Leu Leu Pro Leu Leu Val Ala Ile Asn Thr Val Ser Phe His Gly | |
| 160 165 170 | |
| ggg cac gag ctt tcc cat cca ttt tgc tac cac cca gaa gtg atc aaa | 579 |
| Gly His Glu Leu Ser His Pro Phe Cys Tyr His Pro Glu Val Ile Lys | |
| 175 180 185 | |
| tac aca tat tcc aaa cct tgg atc agc agt ttt tgg gga ctg ttt ctt | 627 |
| Tyr Thr Tyr Ser Lys Pro Trp Ile Ser Ser Phe Trp Gly Leu Phe Leu | |
| 190 195 200 | |
| cag ctc tac ctg aat ggc act gac gta ttg ttt att ctt ttc tcc tat | 675 |
| Gln Leu Tyr Leu Asn Gly Thr Asp Val Leu Phe Ile Leu Phe Ser Tyr | |
| 205 210 215 220 | |

gtc ctg atc ctc cgt act gtt ctg ggc att gtg gcc cga aag aag caa 723
 Val Leu Ile Leu Arg Thr Val Leu Gly Ile Val Ala Arg Lys Lys Gln
 225 230 235
 caa aaa gct ctc agc act tgt gtc tgt cac atc tgt gca gtc act att 771
 Gln Lys Ala Leu Ser Thr Cys Val Cys His Ile Cys Ala Val Thr Ile
 240 245 250
 ttc tat gtg cca ctg atc agc ctc tct ttg gca cac cgc ctc ttc cac 819
 Phe Tyr Val Pro Leu Ile Ser Leu Ser Leu Ala His Arg Leu Phe His
 255 260 265
 tcc acc cca agg gtg ctc tgt agc act ttg gcc aat att tat ctg ctc 867
 Ser Thr Pro Arg Val Leu Cys Ser Thr Leu Ala Asn Ile Tyr Leu Leu
 270 275 280
 tta cca cct gtg ctg aac cct atc att tac agc ttg aag acc aag aca 915
 Leu Pro Pro Val Leu Asn Pro Ile Ile Tyr Ser Leu Lys Thr Lys Thr
 285 290 295 300
 atc cgc cag gct atg ttc cag ctg ctc caa tcc aag ggt tca tgg ggt 963
 Ile Arg Gln Ala Met Phe Gln Leu Leu Gln Ser Lys Gly Ser Trp Gly
 305 310 315
 ttt aat gtg agg ggt ctt agg gga aga tgg gat tgaaggtagg aaatt 1011
 Phe Asn Val Arg Gly Leu Arg Gly Arg Trp Asp
 320 325

<210> 20
 <211> 327
 <212> PRT
 <213> Homo sapiens

<400> 20
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 1 5 10 15
 Thr Ala Phe Pro Gly Leu Glu Cys Ala His Val Trp Ile Ser Ile Pro
 20 25 30
 Val Cys Cys Leu Tyr Thr Ile Ala Leu Leu Gly Asn Ser Met Ile Phe
 35 40 45
 Leu Val Ile Ile Thr Lys Arg Arg Leu His Lys Pro Met Tyr Tyr Phe
 50 55 60
 Leu Ser Met Leu Ala Ala Val Asp Leu Cys Leu Thr Ile Thr Thr Leu
 65 70 75 80
 Pro Thr Val Leu Gly Val Leu Trp Phe His Ala Arg Glu Ile Ser Phe
 85 90 95
 Lys Ala Cys Phe Ile Gln Met Phe Phe Val His Ala Phe Ser Leu Leu
 100 105 110

Glu Ser Ser Val Leu Val Ala Met Ala Phe Asp Arg Phe Val Ala Ile
 115 120 125
 Cys Asn Pro Leu Asn Tyr Ala Thr Ile Leu Thr Asp Arg Met Val Leu
 130 135 140
 Val Ile Gly Leu Val Ile Cys Ile Arg Pro Ala Val Phe Leu Leu Pro
 145 150 155 160
 Leu Leu Val Ala Ile Asn Thr Val Ser Phe His Gly Gly His Glu Leu
 165 170 175
 Ser His Pro Phe Cys Tyr His Pro Glu Val Ile Lys Tyr Thr Tyr Ser
 180 185 190
 Lys Pro Trp Ile Ser Ser Phe Trp Gly Leu Phe Leu Gln Leu Tyr Leu
 195 200 205
 Asn Gly Thr Asp Val Leu Phe Ile Leu Phe Ser Tyr Val Leu Ile Leu
 210 215 220
 Arg Thr Val Leu Gly Ile Val Ala Arg Lys Lys Gln Gln Lys Ala Leu
 225 230 235 240
 Ser Thr Cys Val Cys His Ile Cys Ala Val Thr Ile Phe Tyr Val Pro
 245 250 255
 Leu Ile Ser Leu Ser Leu Ala His Arg Leu Phe His Ser Thr Pro Arg
 260 265 270
 Val Leu Cys Ser Thr Leu Ala Asn Ile Tyr Leu Leu Leu Pro Pro Val
 275 280 285
 Leu Asn Pro Ile Ile Tyr Ser Leu Lys Thr Lys Thr Ile Arg Gln Ala
 290 295 300
 Met Phe Gln Leu Leu Gln Ser Lys Gly Ser Trp Gly Phe Asn Val Arg
 305 310 315 320
 Gly Leu Arg Gly Arg Trp Asp
 325

<210> 21
 <211> 1011
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (16)..(996)

<400> 21
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 Met Ala Ile Phe Asn Asn Thr Thr Ser Ser Ser Ser
 1 5 10

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|---|-----|
| aac ttc ctc ctc act gca ttc cct ggg ctg gaa tgt gct cat gtc tgg | 99 |
| Asn Phe Leu Leu Thr Ala Phe Pro Gly Leu Glu Cys Ala His Val Trp | |
| 15 20 25 | |
| atc tcc att cca gtc tgc tgt ctc tac acc att gcc ctc ttg gga aac | 147 |
| Ile Ser Ile Pro Val Cys Cys Leu Tyr Thr Ile Ala Leu Leu Gly Asn | |
| 30 35 40 | |
| agt atg atc ttt ctt gtc atc att act aag cgg aga ctc cac aaa ccc | 195 |
| Ser Met Ile Phe Leu Val Ile Ile Thr Lys Arg Arg Leu His Lys Pro | |
| 45 50 55 60 | |
| atg tat tat ttc ctc tcc atg ctg gca gct gtt gat cta tgt ctg acc | 243 |
| Met Tyr Tyr Phe Leu Ser Met Leu Ala Ala Val Asp Leu Cys Leu Thr | |
| 65 70 75 | |
| att acg acc ctt ccc act gtg ctt ggt gtt ctc tgg ttt cat gcc cgg | 291 |
| Ile Thr Thr Leu Pro Thr Val Leu Gly Val Leu Trp Phe His Ala Arg | |
| 80 85 90 | |
| gag atc agc ttt aaa gct tgc ttc att caa atg ttc ttt gtg cat gct | 339 |
| Glu Ile Ser Phe Lys Ala Cys Phe Ile Gln Met Phe Phe Val His Ala | |
| 95 100 105 | |
| ttc tcc ttg ctg gag tcc tgc gtg ctg gta gcc atg gcc ttt gac cgc | 387 |
| Phe Ser Leu Leu Glu Ser Ser Val Leu Val Ala Met Ala Phe Asp Arg | |
| 110 115 120 | |
| ttc gtg gct atc tgt aac cca ctg aac tat gct act atc ctc aca gac | 435 |
| Phe Val Ala Ile Cys Asn Pro Leu Asn Tyr Ala Thr Ile Leu Thr Asp | |
| 125 130 135 140 | |
| agg atg gtc ctg gtg ata ggg ctg gtc atc tgc att aga cca gca gtt | 483 |
| Arg Met Val Leu Val Ile Gly Leu Val Ile Cys Ile Arg Pro Ala Val | |
| 145 150 155 | |
| ttc tta ctt ccc ctt ctt gta gcc ata aac act gtg tct ttt cat ggg | 531 |
| Phe Leu Leu Pro Leu Leu Val Ala Ile Asn Thr Val Ser Phe His Gly | |
| 160 165 170 | |
| ggc cac gag ctt tcc cat cca ttt tgc tac cac cca gaa gtg atc aaa | 579 |
| Gly His Glu Leu Ser His Pro Phe Cys Tyr His Pro Glu Val Ile Lys | |
| 175 180 185 | |
| tac aca tat tcc aaa cct tgg atc agc agt ttt tgg gga ctg ttt ctt | 627 |
| Tyr Thr Tyr Ser Lys Pro Trp Ile Ser Ser Phe Trp Gly Leu Phe Leu | |
| 190 195 200 | |
| cag ctc tac ctg aat ggc act gac gta ttg ttt att ctt ttc tcc tat | 675 |
| Gln Leu Tyr Leu Asn Gly Thr Asp Val Leu Phe Ile Leu Phe Ser Tyr | |
| 205 210 215 220 | |
| gtc ctg atc ctc cgt act gtt ctg ggc att gtg gcc cga aag aag caa | 723 |
| Val Leu Ile Leu Arg Thr Val Leu Gly Ile Val Ala Arg Lys Lys Gln | |
| 225 230 235 | |

caa aaa gct ctc agc act tgt gtc tgt cac atc tgt gca gtc act att 771
 Gln Lys Ala Leu Ser Thr Cys Val Cys His Ile Cys Ala Val Thr Ile
 240 245 250
 ttc tat gtg cca ctg atc agc ctc tct ttg gca cac cgc ctc ttc cac 819
 Phe Tyr Val Pro Leu Ile Ser Leu Ser Leu Ala His Arg Leu Phe His
 255 260 265
 tcc acc cca agg gtg ctc tgt agc act ttg gcc aat att tat ctg ctc 867
 Ser Thr Pro Arg Val Leu Cys Ser Thr Leu Ala Asn Ile Tyr Leu Leu
 270 275 280
 tta cca cct gtg ctg aac cct atc att tac agc ttg aag acc aag aca 915
 Leu Pro Pro Val Leu Asn Pro Ile Ile Tyr Ser Leu Lys Thr Lys Thr
 285 290 295 300
 atc cgc cag gct atg ttc cag ctg ctc caa tcc aag ggt tca tgg ggt 963
 Ile Arg Gln Ala Met Phe Gln Leu Leu Gln Ser Lys Gly Ser Trp Gly
 305 310 315
 ttt aat gtg agg ggt ctt agg gga aga tgg gat tgaaggtagg aaatt 1011
 Phe Asn Val Arg Gly Leu Arg Gly Arg Trp Asp
 320 325

<210> 22
 <211> 327
 <212> PRT
 <213> Homo sapiens

<400> 22
 Met Ala Ile Phe Asn Asn Thr Thr Ser Ser Ser Ser Asn Phe Leu Leu
 1 5 10 15
 Thr Ala Phe Pro Gly Leu Glu Cys Ala His Val Trp Ile Ser Ile Pro
 20 25 30
 Val Cys Cys Leu Tyr Thr Ile Ala Leu Leu Gly Asn Ser Met Ile Phe
 35 40 45
 Leu Val Ile Ile Thr Lys Arg Arg Leu His Lys Pro Met Tyr Tyr Phe
 50 55 60
 Leu Ser Met Leu Ala Ala Val Asp Leu Cys Leu Thr Ile Thr Thr Leu
 65 70 75 80
 Pro Thr Val Leu Gly Val Leu Trp Phe His Ala Arg Glu Ile Ser Phe
 85 90 95
 Lys Ala Cys Phe Ile Gln Met Phe Phe Val His Ala Phe Ser Leu Leu
 100 105 110
 Glu Ser Ser Val Leu Val Ala Met Ala Phe Asp Arg Phe Val Ala Ile
 115 120 125
 Cys Asn Pro Leu Asn Tyr Ala Thr Ile Leu Thr Asp Arg Met Val Leu
 130 135 140

Val Ile Gly Leu Val Ile Cys Ile Arg Pro Ala Val Phe Leu Leu Pro
 145 150 155 160
 Leu Leu Val Ala Ile Asn Thr Val Ser Phe His Gly Gly His Glu Leu
 165 170 175
 Ser His Pro Phe Cys Tyr His Pro Glu Val Ile Lys Tyr Thr Tyr Ser
 180 185 190
 Lys Pro Trp Ile Ser Ser Phe Trp Gly Leu Phe Leu Gln Leu Tyr Leu
 195 200 205
 Asn Gly Thr Asp Val Leu Phe Ile Leu Phe Ser Tyr Val Leu Ile Leu
 210 215 220
 Arg Thr Val Leu Gly Ile Val Ala Arg Lys Lys Gln Gln Lys Ala Leu
 225 230 235 240
 Ser Thr Cys Val Cys His Ile Cys Ala Val Thr Ile Phe Tyr Val Pro
 245 250 255
 Leu Ile Ser Leu Ser Leu Ala His Arg Leu Phe His Ser Thr Pro Arg
 260 265 270
 Val Leu Cys Ser Thr Leu Ala Asn Ile Tyr Leu Leu Leu Pro Pro Val
 275 280 285
 Leu Asn Pro Ile Ile Tyr Ser Leu Lys Thr Lys Thr Ile Arg Gln Ala
 290 295 300
 Met Phe Gln Leu Leu Gln Ser Lys Gly Ser Trp Gly Phe Asn Val Arg
 305 310 315 320
 Gly Leu Arg Gly Arg Trp Asp
 325

<210> 23
 <211> 955
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (7)..(951)

<400> 23
 aacaac atg acg aac ttg aat gca tca cag gcc aac cac cgt aac ttc 48
 Met Thr Asn Leu Asn Ala Ser Gln Ala Asn His Arg Asn Phe
 1 5 10
 att ctg aca ggt atc cca gga acg cca gac aag aac cca tgg ttg gcc 96
 Ile Leu Thr Gly Ile Pro Gly Thr Pro Asp Lys Asn Pro Trp Leu Ala
 15 20 25 30

| | |
|---|-----|
| ttt ccc ctg gga ttt ctc tac aca ctc aca ctc ctg gga aat ggt acc | 144 |
| Phe Pro Leu Gly Phe Leu Tyr Thr Leu Thr Leu Leu Gly Asn Gly Thr | |
| 35 40 45 | |
| atc cta gct gtc atc aag gtg gag cca agt ctc cat gag ccc acg tat | 192 |
| Ile Leu Ala Val Ile Lys Val Glu Pro Ser Leu His Glu Pro Thr Tyr | |
| 50 55 60 | |
| tac ttc ctt tct atc ttg gct ctc act gac gtt agt ctc tcc atg tcc | 240 |
| Tyr Phe Leu Ser Ile Leu Ala Leu Thr Asp Val Ser Leu Ser Met Ser | |
| 65 70 75 | |
| acc ttg ccc tcc atg ctc agc atc tac tgg ttt aat gcc cct cag att | 288 |
| Thr Leu Pro Ser Met Leu Ser Ile Tyr Trp Phe Asn Ala Pro Gln Ile | |
| 80 85 90 | |
| gtt ttt gat gca tgc atc atg cag atg ttc ttc atc cat gta ttt gga | 336 |
| Val Phe Asp Ala Cys Ile Met Gln Met Phe Phe Ile His Val Phe Gly | |
| 95 100 105 110 | |
| ata gta gaa tca gga gtc cta gtg tcc atg gcc ttt gac aga ttt gtg | 384 |
| Ile Val Glu Ser Gly Val Leu Val Ser Met Ala Phe Asp Arg Phe Val | |
| 115 120 125 | |
| gcc atc cga aac cca tta cac tat gtt tcc atc ctc act cac gat gtt | 432 |
| Ala Ile Arg Asn Pro Leu His Tyr Val Ser Ile Leu Thr His Asp Val | |
| 130 135 140 | |
| att cga aag act gga ata gct gtc ctc acc cgg gca gtc tgt gtg gta | 480 |
| Ile Arg Lys Thr Gly Ile Ala Val Leu Thr Arg Ala Val Cys Val Val | |
| 145 150 155 | |
| ttc cct gtg ccc ttc ctt ata aag tgc cta ccc ttc tgc cat tcc aat | 528 |
| Phe Pro Val Pro Phe Leu Ile Lys Cys Leu Pro Phe Cys His Ser Asn | |
| 160 165 170 | |
| gtc ttg tct cat tca tac tgt ctt cac caa aac atg atg cgg cta gct | 576 |
| Val Leu Ser His Ser Tyr Cys Leu His Gln Asn Met Met Arg Leu Ala | |
| 175 180 185 190 | |
| tgt gcc agc acc cgc atc aac agc ctc tac ggc ctc atc gtc gtc atc | 624 |
| Cys Ala Ser Thr Arg Ile Asn Ser Leu Tyr Gly Leu Ile Val Val Ile | |
| 195 200 205 | |
| ttc aca ctg ggg ctc gat gtt ctc ctc act cta ctg tct tat gta ctc | 672 |
| Phe Thr Leu Gly Leu Asp Val Leu Leu Thr Leu Leu Ser Tyr Val Leu | |
| 210 215 220 | |
| acc ctg aag act gtg ctg ggc att gtc tcc aga ggt gaa agg ctg aaa | 720 |
| Thr Leu Lys Thr Val Leu Gly Ile Val Ser Arg Gly Glu Arg Leu Lys | |
| 225 230 235 | |
| acc ctc agc aca tgc ctc tct cac atg tct acc gtg ctc ctc ttc tat | 768 |
| Thr Leu Ser Thr Cys Leu Ser His Met Ser Thr Val Leu Leu Phe Tyr | |
| 240 245 250 | |
| gtt cct ttt atg ggt gct gcc tcc atg atc cac aga ttt tgg gag cat | 816 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
| Val | Pro | Phe | Met | Gly | Ala | Ala | Ser | Met | Ile | His | Arg | Phe | Trp | Glu | His | |
| 255 | | | | | 260 | | | | | 265 | | | | | 270 | |
| tta | tca | cca | gta | gtg | cac | atg | gtc | atg | gct | gat | ata | tac | cta | ctg | ctc | 864 |
| Leu | Ser | Pro | Val | Val | His | Met | Val | Met | Ala | Asp | Ile | Tyr | Leu | Leu | Leu | |
| | | | | 275 | | | | | 280 | | | | | 285 | | |
| ccg | cct | gtg | cta | aac | ccc | att | gtc | tac | agt | gtg | aag | acc | aag | caa | att | 912 |
| Pro | Pro | Val | Leu | Asn | Pro | Ile | Val | Tyr | Ser | Val | Lys | Thr | Lys | Gln | Ile | |
| | | | 290 | | | | | 295 | | | | | 300 | | | |
| gga | aga | atg | atc | ttt | caa | gtg | ttc | cag | agg | caa | aaa | aaa | tagg | | | 955 |
| Gly | Arg | Met | Ile | Phe | Gln | Val | Phe | Gln | Arg | Gln | Lys | Lys | | | | |
| | | 305 | | | | | 310 | | | | | 315 | | | | |

<210> 24
 <211> 315
 <212> PRT
 <213> Homo sapiens

| | | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <400> 24 | | | | | | | | | | | | | | | | |
| Met | Thr | Asn | Leu | Asn | Ala | Ser | Gln | Ala | Asn | His | Arg | Asn | Phe | Ile | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Thr | Gly | Ile | Pro | Gly | Thr | Pro | Asp | Lys | Asn | Pro | Trp | Leu | Ala | Phe | Pro | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Leu | Gly | Phe | Leu | Tyr | Thr | Leu | Thr | Leu | Leu | Gly | Asn | Gly | Thr | Ile | Leu | |
| | | 35 | | | | 40 | | | | | | 45 | | | | |
| Ala | Val | Ile | Lys | Val | Glu | Pro | Ser | Leu | His | Glu | Pro | Thr | Tyr | Tyr | Phe | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Leu | Ser | Ile | Leu | Ala | Leu | Thr | Asp | Val | Ser | Leu | Ser | Met | Ser | Thr | Leu | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Pro | Ser | Met | Leu | Ser | Ile | Tyr | Trp | Phe | Asn | Ala | Pro | Gln | Ile | Val | Phe | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Asp | Ala | Cys | Ile | Met | Gln | Met | Phe | Phe | Ile | His | Val | Phe | Gly | Ile | Val | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Glu | Ser | Gly | Val | Leu | Val | Ser | Met | Ala | Phe | Asp | Arg | Phe | Val | Ala | Ile | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Arg | Asn | Pro | Leu | His | Tyr | Val | Ser | Ile | Leu | Thr | His | Asp | Val | Ile | Arg | |
| | | 130 | | | | 135 | | | | | 140 | | | | | |
| Lys | Thr | Gly | Ile | Ala | Val | Leu | Thr | Arg | Ala | Val | Cys | Val | Val | Phe | Pro | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Val | Pro | Phe | Leu | Ile | Lys | Cys | Leu | Pro | Phe | Cys | His | Ser | Asn | Val | Leu | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Ser | His | Ser | Tyr | Cys | Leu | His | Gln | Asn | Met | Met | Arg | Leu | Ala | Cys | Ala | |
| | | | 180 | | | | | 185 | | | | | | 190 | | |

Ser Thr Arg Ile Asn Ser Leu Tyr Gly Leu Ile Val Val Ile Phe Thr
 195 200 205
 Leu Gly Leu Asp Val Leu Leu Thr Leu Leu Ser Tyr Val Leu Thr Leu
 210 215 220
 Lys Thr Val Leu Gly Ile Val Ser Arg Gly Glu Arg Leu Lys Thr Leu
 225 230 235 240
 Ser Thr Cys Leu Ser His Met Ser Thr Val Leu Leu Phe Tyr Val Pro
 245 250 255
 Phe Met Gly Ala Ala Ser Met Ile His Arg Phe Trp Glu His Leu Ser
 260 265 270
 Pro Val Val His Met Val Met Ala Asp Ile Tyr Leu Leu Leu Pro Pro
 275 280 285
 Val Leu Asn Pro Ile Val Tyr Ser Val Lys Thr Lys Gln Ile Gly Arg
 290 295 300
 Met Ile Phe Gln Val Phe Gln Arg Gln Lys Lys
 305 310 315

<210> 25
 <211> 1013
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (6)..(992)

<400> 25
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 Met Asn Leu Asp Ser Phe Phe Ser Phe Leu Leu Lys Ser Leu Ile
 1 5 10 15
 atg gca ctt agc aat tcc agc tgg agg cta ccc cag cct tct ttt ttc 98
 Met Ala Leu Ser Asn Ser Ser Trp Arg Leu Pro Gln Pro Ser Phe Phe
 20 25 30
 ctg gta gga att ccg ggt tta gag gaa agc cag cac tgg atc gca ctg 146
 Leu Val Gly Ile Pro Gly Leu Glu Glu Ser Gln His Trp Ile Ala Leu
 35 40 45
 ccc ctg ggc atc ctt tac ctc ctt gct cta gtg ggc aat gtt acc att 194
 Pro Leu Gly Ile Leu Tyr Leu Leu Ala Leu Val Gly Asn Val Thr Ile
 50 55 60
 ctc ttc atc atc tgg atg gac cca tcc ttg cac caa tct atg tac ctc 242
 Leu Phe Ile Ile Trp Met Asp Pro Ser Leu His Gln Ser Met Tyr Leu
 65 70 75

| | |
|---|-----|
| ttc ctg tcc atg cta gct gcc atc gac ctg gtt gtg gcc tcc tcc act | 290 |
| Phe Leu Ser Met Leu Ala Ala Ile Asp Leu Val Val Ala Ser Ser Thr | |
| 80 85 90 95 | |
| gca ccc aaa gcc ctt gca gtg ctc ctg gtt cgt gcc caa gag att ggt | 338 |
| Ala Pro Lys Ala Leu Ala Val Leu Leu Val Arg Ala Gln Glu Ile Gly | |
| 100 105 110 | |
| tac act gtc tgc ctg atc cag atg ttc ttc acc cat gca ttc tcc tcc | 386 |
| Tyr Thr Val Cys Leu Ile Gln Met Phe Phe Thr His Ala Phe Ser Ser | |
| 115 120 125 | |
| atg gag tca ggg gta ctt gtg gcc atg gct ctg gat cgc tat gta gcc | 434 |
| Met Glu Ser Gly Val Leu Val Ala Met Ala Leu Asp Arg Tyr Val Ala | |
| 130 135 140 | |
| att tgt cac ccc ttg cac cat tcc aca atc ctg cat cca ggg gtc ata | 482 |
| Ile Cys His Pro Leu His His Ser Thr Ile Leu His Pro Gly Val Ile | |
| 145 150 155 | |
| ggg cac atc gga atg gtg gtg ctg gtg cgg gga tta cta ctc ctc atc | 530 |
| Gly His Ile Gly Met Val Val Leu Val Arg Gly Leu Leu Leu Leu Ile | |
| 160 165 170 175 | |
| ccc ttc ctc att ctg ttg cga aaa ctt atc ttc tgc caa gcc acc atc | 578 |
| Pro Phe Leu Ile Leu Leu Arg Lys Leu Ile Phe Cys Gln Ala Thr Ile | |
| 180 185 190 | |
| ata ggc cat gcc tat tgt gaa cat atg gct gtt gtg aaa ctt gcc tgc | 626 |
| Ile Gly His Ala Tyr Cys Glu His Met Ala Val Val Lys Leu Ala Cys | |
| 195 200 205 | |
| tca gaa acc aca gtc aat cga gct tat ggg ctg act gtg gcc ttg ctt | 674 |
| Ser Glu Thr Thr Val Asn Arg Ala Tyr Gly Leu Thr Val Ala Leu Leu | |
| 210 215 220 | |
| gtg gtt ggg ctg gat gtc ctg gcc att ggt gtt tcc tat gcc cac att | 722 |
| Val Val Gly Leu Asp Val Leu Ala Ile Gly Val Ser Tyr Ala His Ile | |
| 225 230 235 | |
| ctc cag gca gtg ctg aag gta cca gga aat gag gcc cga ctt aag gcc | 770 |
| Leu Gln Ala Val Leu Lys Val Pro Gly Asn Glu Ala Arg Leu Lys Ala | |
| 240 245 250 255 | |
| ttt agc aca tgt ggc tct cat gtt tgt gtc atc ctg gtc ttc tat atc | 818 |
| Phe Ser Thr Cys Gly Ser His Val Cys Val Ile Leu Val Phe Tyr Ile | |
| 260 265 270 | |
| ccg gga atg ttc tcc ttc ctc act cac cgc ttt ggt cat cat gta ccc | 866 |
| Pro Gly Met Phe Ser Phe Leu Thr His Arg Phe Gly His His Val Pro | |
| 275 280 285 | |
| cat cac gtc cat gtt ctt ctg gcc ata ctg tat cgc ctt gtg cca cct | 914 |
| His His Val His Val Leu Leu Ala Ile Leu Tyr Arg Leu Val Pro Pro | |
| 290 295 300 | |
| gca ctc aat cct ctt gtc tat agg gtg aag acc cag aag atc cac cag | 962 |

Ala Leu Asn Pro Leu Val Tyr Arg Val Lys Thr Gln Lys Ile His Gln
 305 310 315
 gga gtg ctc agg gtg ttt aca cta aag gat tgacctgaat atattctcac t 1013
 Gly Val Leu Arg Val Phe Thr Leu Lys Asp
 320 325

 <210> 26
 <211> 329
 <212> PRT
 <213> Homo sapiens

 <400> 26
 Met Asn Leu Asp Ser Phe Phe Ser Phe Leu Leu Lys Ser Leu Ile Met
 1 5 10 15
 Ala Leu Ser Asn Ser Ser Trp Arg Leu Pro Gln Pro Ser Phe Phe Leu
 20 25 30
 Val Gly Ile Pro Gly Leu Glu Glu Ser Gln His Trp Ile Ala Leu Pro
 35 40 45
 Leu Gly Ile Leu Tyr Leu Leu Ala Leu Val Gly Asn Val Thr Ile Leu
 50 55 60
 Phe Ile Ile Trp Met Asp Pro Ser Leu His Gln Ser Met Tyr Leu Phe
 65 70 75 80
 Leu Ser Met Leu Ala Ala Ile Asp Leu Val Val Ala Ser Ser Thr Ala
 85 90 95
 Pro Lys Ala Leu Ala Val Leu Leu Val Arg Ala Gln Glu Ile Gly Tyr
 100 105 110
 Thr Val Cys Leu Ile Gln Met Phe Phe Thr His Ala Phe Ser Ser Met
 115 120 125
 Glu Ser Gly Val Leu Val Ala Met Ala Leu Asp Arg Tyr Val Ala Ile
 130 135 140
 Cys His Pro Leu His His Ser Thr Ile Leu His Pro Gly Val Ile Gly
 145 150 155 160
 His Ile Gly Met Val Val Leu Val Arg Gly Leu Leu Leu Ile Pro
 165 170 175
 Phe Leu Ile Leu Leu Arg Lys Leu Ile Phe Cys Gln Ala Thr Ile Ile
 180 185 190
 Gly His Ala Tyr Cys Glu His Met Ala Val Val Lys Leu Ala Cys Ser
 195 200 205
 Glu Thr Thr Val Asn Arg Ala Tyr Gly Leu Thr Val Ala Leu Leu Val
 210 215 220
 Val Gly Leu Asp Val Leu Ala Ile Gly Val Ser Tyr Ala His Ile Leu

| | |
|---|------|
| Asn Val Thr Pro Lys Met Leu Glu Asn Leu Leu Ser Glu Thr Lys Thr | |
| 85 90 95 100 | |
| att tcc tat gtg gga tgc ttg gtg cag tgc tac ttt ttc att gcc gtt | 391 |
| Ile Ser Tyr Val Gly Cys Leu Val Gln Cys Tyr Phe Phe Ile Ala Val | |
| 105 110 115 | |
| gtc cac gtg gag gtc tat atc ctg gct gtg atg gcc ttt gac agg tac | 439 |
| Val His Val Glu Val Tyr Ile Leu Ala Val Met Ala Phe Asp Arg Tyr | |
| 120 125 130 | |
| atg gcc ggc tgc aac cct ctg ctt tat ggc agt aaa atg tct agg act | 487 |
| Met Ala Gly Cys Asn Pro Leu Leu Tyr Gly Ser Lys Met Ser Arg Thr | |
| 135 140 145 | |
| gtg tgt gtt cgg ctc atc tct gtg cct tat gtc tat gga ttc tct gtc | 535 |
| Val Cys Val Arg Leu Ile Ser Val Pro Tyr Val Gly Phe Ser Val | |
| 150 155 160 | |
| agc cta ata tgc aca cta tgg act tat ggc tta tac ttc tgt gga aac | 583 |
| Ser Leu Ile Cys Thr Leu Trp Thr Tyr Gly Leu Tyr Phe Cys Gly Asn | |
| 165 170 175 180 | |
| ttt gaa atc aat cac ttc tat tgt gca gat ccc cct ctc atc cag att | 631 |
| Phe Glu Ile Asn His Phe Tyr Cys Ala Asp Pro Pro Leu Ile Gln Ile | |
| 185 190 195 | |
| gcc tgt ggg aga gtg cac atc aaa gaa atc aca atg att gtt att gct | 679 |
| Ala Cys Gly Arg Val His Ile Lys Glu Ile Thr Met Ile Val Ile Ala | |
| 200 205 210 | |
| gga att aac ttc aca tat tcc ctc tcg gtg gtc ctc atc tcc tac act | 727 |
| Gly Ile Asn Phe Thr Tyr Ser Leu Ser Val Val Leu Ile Ser Tyr Thr | |
| 215 220 225 | |
| ctc att gta gta gct gtg cta cgc atg cgc tct gcc gat ggc agg agg | 775 |
| Leu Ile Val Val Ala Val Leu Arg Met Arg Ser Ala Asp Gly Arg Arg | |
| 230 235 240 | |
| aag gcg ttc tcc acc tgt ggg tcc cac ttg acg gct gtt tct atg ttt | 823 |
| Lys Ala Phe Ser Thr Cys Gly Ser His Leu Thr Ala Val Ser Met Phe | |
| 245 250 255 260 | |
| tat ggg acc ccc atc ttc atg tat ctc agg aga ccc act gag gaa tcc | 871 |
| Tyr Gly Thr Pro Ile Phe Met Tyr Leu Arg Arg Pro Thr Glu Glu Ser | |
| 265 270 275 | |
| gta gag cag ggc aaa atg gtg gct gtg ttt tac acc aca gta att cct | 919 |
| Val Glu Gln Gly Lys Met Val Ala Val Phe Tyr Thr Thr Val Ile Pro | |
| 280 285 290 | |
| atg ttg aat ccc atg atc tac agt ctg aga aat aag gat gta aaa gaa | 967 |
| Met Leu Asn Pro Met Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Glu | |
| 295 300 305 | |
| gca gtc aac aaa gca atc acc aag aca tat gtg agg cag taaaact | 1013 |
| Ala Val Asn Lys Ala Ile Thr Lys Thr Tyr Val Arg Gln | |

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 315
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 Gln Val Leu Phe Phe Val Val Phe Leu Ala Val Tyr Met Ile Thr Leu
 35 40 45
 Leu Gly Asn Ile Gly Met Ile Ile Leu Ile Ser Ile Ser Pro Gln Leu
 50 55 60
 Gln Ser Pro Met Tyr Phe Phe Leu Ser His Leu Ser Phe Ala Asp Val
 65 70 75 80
 Cys Phe Ser Ser Asn Val Thr Pro Lys Met Leu Glu Asn Leu Leu Ser
 85 90 95
 Glu Thr Lys Thr Ile Ser Tyr Val Gly Cys Leu Val Gln Cys Tyr Phe
 100 105 110
 Phe Ile Ala Val Val His Val Glu Val Tyr Ile Leu Ala Val Met Ala
 115 120 125
 Phe Asp Arg Tyr Met Ala Gly Cys Asn Pro Leu Leu Tyr Gly Ser Lys
 130 135 140
 Met Ser Arg Thr Val Cys Val Arg Leu Ile Ser Val Pro Tyr Val Tyr
 145 150 155 160
 Gly Phe Ser Val Ser Leu Ile Cys Thr Leu Trp Thr Tyr Gly Leu Tyr
 165 170 175
 Phe Cys Gly Asn Phe Glu Ile Asn His Phe Tyr Cys Ala Asp Pro Pro
 180 185 190
 Leu Ile Gln Ile Ala Cys Gly Arg Val His Ile Lys Glu Ile Thr Met
 195 200 205
 Ile Val Ile Ala Gly Ile Asn Phe Thr Tyr Ser Leu Ser Val Val Leu
 210 215 220
 Ile Ser Tyr Thr Leu Ile Val Val Ala Val Leu Arg Met Arg Ser Ala
 225 230 235 240
 Asp Gly Arg Arg Lys Ala Phe Ser Thr Cys Gly Ser His Leu Thr Ala
 245 250 255

Val Ser Met Phe Tyr Gly Thr Pro Ile Phe Met Tyr Leu Arg Arg Pro
260 265 270

Thr Glu Glu Ser Val Glu Gln Gly Lys Met Val Ala Val Phe Tyr Thr
275 280 285

Thr Val Ile Pro Met Leu Asn Pro Met Ile Tyr Ser Leu Arg Asn Lys
290 295 300

Asp Val Lys Glu Ala Val Asn Lys Ala Ile Thr Lys Thr Tyr Val Arg
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Gln

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Asp Leu Ala Tyr Thr Lys Ala Met Pro Asn Phe Thr Asp Val Thr Glu
5 10 15 20

ttt act ctc ctg ggg ctg acc tgt cgt cag gag cta cag gtt ctc ttt 151
Phe Thr Leu Leu Gly Leu Thr Cys Arg Gln Glu Leu Gln Val Leu Phe
25 30 35

ttt gtg gtg ttc cta gcg gtt tac atg atc act ctg ttg gga aat att 199
Phe Val Val Phe Leu Ala Val Tyr Met Ile Thr Leu Leu Gly Asn Ile
40 45 50

ggg atg atc att ttg att agc atc agt cct cag ctt cag agt ccc atg 247
Gly Met Ile Ile Leu Ile Ser Ile Ser Pro Gln Leu Gln Ser Pro Met
55 60 65

tac ttt ttc ctg agt cat ctg tct ttt gcg gac gtg tgc ttc tcc tcc 295
Tyr Phe Phe Leu Ser His Leu Ser Phe Ala Asp Val Cys Phe Ser Ser
70 75 80

aac gtt acc ccc aaa atg ctg gaa aac tta tta tca gag aca aaa acc 343
Asn Val Thr Pro Lys Met Leu Glu Asn Leu Leu Ser Glu Thr Lys Thr
85 90 95 100

att tcc tat gtg gga tgc ttg gtg cag tgc tac ttt ttc att gcc gtt 391
Ile Ser Tyr Val Gly Cys Leu Val Gln Cys Tyr Phe Phe Ile Ala Val

| 105 | 110 | 115 | |
|-------------------------------------|-----------------------------|------|--|
| gtc cac gtg gag gtc tat atc ctg gct | gtg atg gcc ttt gac agg tac | 439 | |
| Val His Val Glu Val Tyr Ile Leu Ala | Val Met Ala Phe Asp Arg Tyr | | |
| 120 | 125 130 | | |
| atg gcc ggc tgc aac cct ctg ctt tat | ggc agt aaa atg tct agg act | 487 | |
| Met Ala Gly Cys Asn Pro Leu Leu Tyr | Gly Ser Lys Met Ser Arg Thr | | |
| 135 | 140 145 | | |
| gtg tgt gtt cgg ctc atc tct gtg cct | tat gtc tat gga ttc tct gtc | 535 | |
| Val Cys Val Arg Leu Ile Ser Val Pro | Tyr Val Tyr Gly Phe Ser Val | | |
| 150 | 155 160 | | |
| agc cta ata tgc aca cta tgg act tat | ggc tta tac ttc tgt gga aac | 583 | |
| Ser Leu Ile Cys Thr Leu Trp Thr Tyr | Gly Leu Tyr Phe Cys Gly Asn | | |
| 165 | 170 175 180 | | |
| ttt gaa atc aat cac ttc tat tgt gca | gat ccc cct ctc atc cag att | 631 | |
| Phe Glu Ile Asn His Phe Tyr Cys Ala | Asp Pro Pro Leu Ile Gln Ile | | |
| 185 | 190 195 | | |
| gcc tgt ggg aga gtg cac atc aaa gaa | atc aca atg att gtt att gct | 679 | |
| Ala Cys Gly Arg Val His Ile Lys Glu | Ile Thr Met Ile Val Ile Ala | | |
| 200 | 205 210 | | |
| gga att aac ttc aca tat tcc ctc tgc | gtg gtc ctc atc tcc tac act | 727 | |
| Gly Ile Asn Phe Thr Tyr Ser Leu Ser | Val Val Leu Ile Ser Tyr Thr | | |
| 215 | 220 225 | | |
| ctc att gta gta gct gtg cta cgc atg | cgc tct gcc gat ggc agg agg | 775 | |
| Leu Ile Val Val Ala Val Leu Arg Met | Arg Ser Ala Asp Gly Arg Arg | | |
| 230 | 235 240 | | |
| aag gcg ttc tcc acc tgt ggg tcc cac | ttg acg gct gtt tct atg ttt | 823 | |
| Lys Ala Phe Ser Thr Cys Gly Ser His | Leu Thr Ala Val Ser Met Phe | | |
| 245 | 250 255 260 | | |
| tat ggg acc ccc atc ttc atg tat ctc | agg aga ccc act gag gaa tcc | 871 | |
| Tyr Gly Thr Pro Ile Phe Met Tyr Leu | Arg Arg Pro Thr Glu Glu Ser | | |
| 265 | 270 275 | | |
| gta gag cag ggc aaa atg gtg gct gtg | ttt tac acc aca gta att cct | 919 | |
| Val Glu Gln Gly Lys Met Val Ala Val | Phe Tyr Thr Thr Val Ile Pro | | |
| 280 | 285 290 | | |
| atg ttg aat ccc atg atc tac agt ctg | aga aat aag gat gta aaa gaa | 967 | |
| Met Leu Asn Pro Met Ile Tyr Ser Leu | Arg Asn Lys Asp Val Lys Glu | | |
| 295 | 300 305 | | |
| gca gtc aac aaa gca atc acc aag aca | tat gtg agg cag taaaaact | 1013 | |
| Ala Val Asn Lys Ala Ile Thr Lys Thr | Tyr Val Arg Gln | | |
| 310 | 315 320 | | |

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<212> PRT

<213> Homo sapiens

<400> 30

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| Met | Gly | Asn | Thr | Asp | Leu | Ala | Tyr | Thr | Lys | Ala | Met | Pro | Asn | Phe | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Val | Thr | Glu | Phe | Thr | Leu | Leu | Gly | Leu | Thr | Cys | Arg | Gln | Glu | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gln | Val | Leu | Phe | Phe | Val | Val | Phe | Leu | Ala | Val | Tyr | Met | Ile | Thr | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Gly | Asn | Ile | Gly | Met | Ile | Ile | Leu | Ile | Ser | Ile | Ser | Pro | Gln | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Ser | Pro | Met | Tyr | Phe | Phe | Leu | Ser | His | Leu | Ser | Phe | Ala | Asp | Val |
| | 65 | | | | 70 | | | | 75 | | | | | | 80 |
| Cys | Phe | Ser | Ser | Asn | Val | Thr | Pro | Lys | Met | Leu | Glu | Asn | Leu | Leu | Ser |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Glu | Thr | Lys | Thr | Ile | Ser | Tyr | Val | Gly | Cys | Leu | Val | Gln | Cys | Tyr | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Ile | Ala | Val | Val | His | Val | Glu | Val | Tyr | Ile | Leu | Ala | Val | Met | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Asp | Arg | Tyr | Met | Ala | Gly | Cys | Asn | Pro | Leu | Leu | Tyr | Gly | Ser | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Met | Ser | Arg | Thr | Val | Cys | Val | Arg | Leu | Ile | Ser | Val | Pro | Tyr | Val | Tyr |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Phe | Ser | Val | Ser | Leu | Ile | Cys | Thr | Leu | Trp | Thr | Tyr | Gly | Leu | Tyr |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Phe | Cys | Gly | Asn | Phe | Glu | Ile | Asn | His | Phe | Tyr | Cys | Ala | Asp | Pro | Pro |
| | | | 180 | | | | 185 | | | | | | 190 | | |
| Leu | Ile | Gln | Ile | Ala | Cys | Gly | Arg | Val | His | Ile | Lys | Glu | Ile | Thr | Met |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ile | Val | Ile | Ala | Gly | Ile | Asn | Phe | Thr | Tyr | Ser | Leu | Ser | Val | Val | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Ser | Tyr | Thr | Leu | Ile | Val | Val | Ala | Val | Leu | Arg | Met | Arg | Ser | Ala |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 |
| Asp | Gly | Arg | Arg | Lys | Ala | Phe | Ser | Thr | Cys | Gly | Ser | His | Leu | Thr | Ala |
| | | | | 245 | | | | | 250 | | | | 255 | | |
| Val | Ser | Met | Phe | Tyr | Gly | Thr | Pro | Ile | Phe | Met | Tyr | Leu | Arg | Arg | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Thr | Glu | Glu | Ser | Val | Glu | Gln | Gly | Lys | Met | Val | Ala | Val | Phe | Tyr | Thr |
| | | 275 | | | | | 280 | | | | | 285 | | | |

Thr Val Ile Pro Met Leu Asn Pro Met Ile Tyr Ser Leu Arg Asn Lys
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Asp Val Lys Glu Ala Val Asn Lys Ala Ile Thr Lys Thr Tyr Val Arg
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Gln

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gaa gct ggg acc aat agg acc gct gtt gct gag ttc att cta ctg ggc 101
 Glu Ala Gly Thr Asn Arg Thr Ala Val Ala Glu Phe Ile Leu Leu Gly
 10 15 20 25

cta gtg caa aca gaa gag atg cag cca gtt gtc ttt gtg ctc ctc ctc 149
 Leu Val Gln Thr Glu Glu Met Gln Pro Val Val Phe Val Leu Leu Leu
 30 35 40

ttt gcc tat ctg gtc aca act ggg ggc aac ctc agc atc ctg gca gcc 197
 Phe Ala Tyr Leu Val Thr Thr Gly Gly Asn Leu Ser Ile Leu Ala Ala
 45 50 55

gtc ttg gtg gag ccc aaa ctc cac gcc ccc atg tac ttc ttc ctg ggg 245
 Val Leu Val Glu Pro Lys Leu His Ala Pro Met Tyr Phe Phe Leu Gly
 60 65 70

aac ctg tca gtg ctg gat gtc gga tgt atc act gtc act gtt cct gca 293
 Asn Leu Ser Val Leu Asp Val Gly Cys Ile Thr Val Thr Val Pro Ala
 75 80 85

atg ttg ggt cgt ctc ttg tcc cac aag tcc aca att tcc tat gac gcc 341
 Met Leu Gly Arg Leu Leu Ser His Lys Ser Thr Ile Ser Tyr Asp Ala
 90 95 100 105

tgc ctc tcc cag ctc ttc ttc ttc cac ctt ctg gct ggg atg gac tgc 389
 Cys Leu Ser Gln Leu Phe Phe Phe His Leu Leu Ala Gly Met Asp Cys
 110 115 120

ttc ctg ctg acc gcc atg gcc tat gac cga ctc ctg gcc atc tgc cag 437
 Phe Leu Leu Thr Ala Met Ala Tyr Asp Arg Leu Leu Ala Ile Cys Gln
 125 130 135

| | |
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| ccc ctc acc tac agc acc cgc atg agt cag aca gtc cag agg atg ttg | 485 |
| Pro Leu Thr Tyr Ser Thr Arg Met Ser Gln Thr Val Gln Arg Met Leu | |
| 140 145 150 | |
| gtg gct gcg tcc ttg gct tgt gcc ttc acc aac gca ctg acc cac act | 533 |
| Val Ala Ala Ser Leu Ala Cys Ala Phe Thr Asn Ala Leu Thr His Thr | |
| 155 160 165 | |
| gtg gcc atg tcc acg ctc aac ttc tgt ggc ccc aat gag gtc aat cac | 581 |
| Val Ala Met Ser Thr Leu Asn Phe Cys Gly Pro Asn Glu Val Asn His | |
| 170 175 180 185 | |
| ttc tac tgt gac ctc cca cag ctc ttc cag ctc tcc tgc tcc agc acc | 629 |
| Phe Tyr Cys Asp Leu Pro Gln Leu Phe Gln Leu Ser Cys Ser Ser Thr | |
| 190 195 200 | |
| caa ctc aat gag ctg ctg ctc ttt gct gtg ggt ttc atc atg gca ggc | 677 |
| Gln Leu Asn Glu Leu Leu Leu Phe Ala Val Gly Phe Ile Met Ala Gly | |
| 205 210 215 | |
| aca cct ttg gtt ctc atc atc act gcc tac agc cac gtg gca gct gca | 725 |
| Thr Pro Leu Val Leu Ile Ile Thr Ala Tyr Ser His Val Ala Ala Ala | |
| 220 225 230 | |
| gtt cta cga atc cgt tca gtg gag ggc cga aag aag gcc ttc tcc acg | 773 |
| Val Leu Arg Ile Arg Ser Val Glu Gly Arg Lys Lys Ala Phe Ser Thr | |
| 235 240 245 | |
| tgt ggc tcc cac ctc acc gtg gtt tgt ctt ttc ttt gga aga ggt atc | 821 |
| Cys Gly Ser His Leu Thr Val Val Cys Leu Phe Phe Gly Arg Gly Ile | |
| 250 255 260 265 | |
| ttc aac tac atg aga ctg ggt tca gag gag gct tca gac aag gat aaa | 869 |
| Phe Asn Tyr Met Arg Leu Gly Ser Glu Glu Ala Ser Asp Lys Asp Lys | |
| 270 275 280 | |
| ggg gtt gga gtt ttc aac act gtt atc aac cct atg ctg aac cct ctt | 917 |
| Gly Val Gly Val Phe Asn Thr Val Ile Asn Pro Met Leu Asn Pro Leu | |
| 285 290 295 | |
| atc tac agc ctc aga aac cct gat gtt cag ggt gct ctg tgg caa ata | 965 |
| Ile Tyr Ser Leu Arg Asn Pro Asp Val Gln Gly Ala Leu Trp Gln Ile | |
| 300 305 310 | |
| ttt ttg ggg agg aga tca ctg acc tgagag | 995 |
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<213> Homo sapiens

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| Gln Pro Val Val Phe Val Leu Leu Leu Phe Ala Tyr Leu Val Thr Thr | 35 | 40 | 45 |
| Gly Gly Asn Leu Ser Ile Leu Ala Ala Val Leu Val Glu Pro Lys Leu | 50 | 55 | 60 |
| His Ala Pro Met Tyr Phe Phe Leu Gly Asn Leu Ser Val Leu Asp Val | 65 | 70 | 75 |
| Gly Cys Ile Thr Val Thr Val Pro Ala Met Leu Gly Arg Leu Leu Ser | 85 | 90 | 95 |
| His Lys Ser Thr Ile Ser Tyr Asp Ala Cys Leu Ser Gln Leu Phe Phe | 100 | 105 | 110 |
| Phe His Leu Leu Ala Gly Met Asp Cys Phe Leu Leu Thr Ala Met Ala | 115 | 120 | 125 |
| Tyr Asp Arg Leu Leu Ala Ile Cys Gln Pro Leu Thr Tyr Ser Thr Arg | 130 | 135 | 140 |
| Met Ser Gln Thr Val Gln Arg Met Leu Val Ala Ala Ser Leu Ala Cys | 145 | 150 | 155 |
| Ala Phe Thr Asn Ala Leu Thr His Thr Val Ala Met Ser Thr Leu Asn | 165 | 170 | 175 |
| Phe Cys Gly Pro Asn Glu Val Asn His Phe Tyr Cys Asp Leu Pro Gln | 180 | 185 | 190 |
| Leu Phe Gln Leu Ser Cys Ser Ser Thr Gln Leu Asn Glu Leu Leu Leu | 195 | 200 | 205 |
| Phe Ala Val Gly Phe Ile Met Ala Gly Thr Pro Leu Val Leu Ile Ile | 210 | 215 | 220 |
| Thr Ala Tyr Ser His Val Ala Ala Ala Val Leu Arg Ile Arg Ser Val | 225 | 230 | 235 |
| Glu Gly Arg Lys Lys Ala Phe Ser Thr Cys Gly Ser His Leu Thr Val | 245 | 250 | 255 |
| Val Cys Leu Phe Phe Gly Arg Gly Ile Phe Asn Tyr Met Arg Leu Gly | 260 | 265 | 270 |
| Ser Glu Glu Ala Ser Asp Lys Asp Lys Gly Val Gly Val Phe Asn Thr | 275 | 280 | 285 |
| Val Ile Asn Pro Met Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn Pro | 290 | 295 | 300 |
| Asp Val Gln Gly Ala Leu Trp Gln Ile Phe Leu Gly Arg Arg Ser Leu | | | |

305

310

315

320

Thr

<210> 33

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<212> DNA

<213> Homo sapiens

<220>

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<222> (3)..(962)

<400> 33

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| Met Ser Ser Cys Asn Phe Thr His Ala Thr Phe Val Leu Ile Gly | |
| 1 5 10 15 | |
| atc cca gga tta gag aaa gcc cat ttc tgg gtt ggc ttc ccc ctc ctt | 95 |
| Ile Pro Gly Leu Glu Lys Ala His Phe Trp Val Gly Phe Pro Leu Leu | |
| 20 25 30 | |
| tcc atg tat gta gtg gca atg ttt gga aac tgc atc gtg gtc ttc atc | 143 |
| Ser Met Tyr Val Val Ala Met Phe Gly Asn Cys Ile Val Val Phe Ile | |
| 35 40 45 | |
| gta agg acg gaa cgc agc ctg cac gct ccg atg tac ctc ttt ctc tgc | 191 |
| Val Arg Thr Glu Arg Ser Leu His Ala Pro Met Tyr Leu Phe Leu Cys | |
| 50 55 60 | |
| atg ctt gca gcc att gac ctg gcc tta tcc aca tcc acc atg cct aag | 239 |
| Met Leu Ala Ala Ile Asp Leu Ala Leu Ser Thr Ser Thr Met Pro Lys | |
| 65 70 75 | |
| atc ctt gcc ctt ttc tgg ttt gat tcc cga gag att agc ttt gag gcc | 287 |
| Ile Leu Ala Leu Phe Trp Phe Asp Ser Arg Glu Ile Ser Phe Glu Ala | |
| 80 85 90 95 | |
| tgt ctt acc cag atg ttc ttt att cat gcc ctc tca gcc att gaa tcc | 335 |
| Cys Leu Thr Gln Met Phe Phe Ile His Ala Leu Ser Ala Ile Glu Ser | |
| 100 105 110 | |
| acc atc ctg ctg gcc atg gcc ttt gac cgt tat gtg gcc atc tgc cac | 383 |
| Thr Ile Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile Cys His | |
| 115 120 125 | |
| cca ctg cgc cat gct gca gtg ctc aac aat aca gta aca gcc cag att | 431 |
| Pro Leu Arg His Ala Ala Val Leu Asn Asn Thr Val Thr Ala Gln Ile | |
| 130 135 140 | |
| ggc atc gtg gct gtg gtc cgc gga tcc ctc ttt ttt ttc cca ctg cct | 479 |
| Gly Ile Val Ala Val Val Arg Gly Ser Leu Phe Phe Phe Pro Leu Pro | |
| 145 150 155 | |

| | |
|---|------|
| ctg ctg atc aag cgg ctg gcc ttc tgc cac tcc aat gtc ctc tcg cac | 527 |
| Leu Leu Ile Lys Arg Leu Ala Phe Cys His Ser Asn Val Leu Ser His | |
| 160 165 170 175 | |
| tcc tat tgt gtc cac cag gat gta atg aag ttg gcc tat gca gac act | 575 |
| Ser Tyr Cys Val His Gln Asp Val Met Lys Leu Ala Tyr Ala Asp Thr | |
| 180 185 190 | |
| ttg ccc aat gtg gta tat ggt ctt act gcc att ctg ctg gtc atg ggc | 623 |
| Leu Pro Asn Val Tyr Gly Leu Thr Ala Ile Leu Leu Val Met Gly | |
| 195 200 205 | |
| gtg gac gta atg ttc atc tcc ttg tcc tat ttt ctg ata ata cga acg | 671 |
| Val Asp Val Met Phe Ile Ser Leu Ser Tyr Phe Leu Ile Ile Arg Thr | |
| 210 215 220 | |
| gtt ctg caa ctg cct tcc aag tca gag cgg gcc aag gcc ttt gga acc | 719 |
| Val Leu Gln Leu Pro Ser Lys Ser Glu Arg Ala Lys Ala Phe Gly Thr | |
| 225 230 235 | |
| tgt gtg tca cac att ggt gtg gta ctc gcc ttc tat gtg cca ctt att | 767 |
| Cys Val Ser His Ile Gly Val Val Leu Ala Phe Tyr Val Pro Leu Ile | |
| 240 245 250 255 | |
| ggc ctc tca gtg gta cac cgc ttt gga aac agc ctt cat ccc att gtg | 815 |
| Gly Leu Ser Val Val His Arg Phe Gly Asn Ser Leu His Pro Ile Val | |
| 260 265 270 | |
| cgt gtt gtc atg ggt gac atc tac ctg ctg ctg cct cct gtc atc aat | 863 |
| Arg Val Val Met Gly Asp Ile Tyr Leu Leu Leu Pro Pro Val Ile Asn | |
| 275 280 285 | |
| ccc atc atc tat ggt gcc aaa acc aaa cag atc aga aca cgg gtg ctg | 911 |
| Pro Ile Ile Tyr Gly Ala Lys Thr Lys Gln Ile Arg Thr Arg Val Leu | |
| 290 295 300 | |
| gct atg ttc aag atc agc tgt gac aag gac ttg cag gct gtg gga ggc | 959 |
| Ala Met Phe Lys Ile Ser Cys Asp Lys Asp Leu Gln Ala Val Gly Gly | |
| 305 310 315 | |
| aag tgacccttaa cactacactt ctcccttatct ttattggctt gataaacata | 1012 |
| Lys | |
| 320 | |
| attattttcta ac | 1024 |

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 <212> PRT
 <213> Homo sapiens

<400> 34
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 Pro Gly Leu Glu Lys Ala His Phe Trp Val Gly Phe Pro Leu Leu Ser

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Tyr | Val | Val | Ala | Met | Phe | Gly | Asn | Cys | Ile | Val | Val | Phe | Ile | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Arg | Thr | Glu | Arg | Ser | Leu | His | Ala | Pro | Met | Tyr | Leu | Phe | Leu | Cys | Met |
| | | 50 | | | | | 55 | | | | | 60 | | | |
| Leu | Ala | Ala | Ile | Asp | Leu | Ala | Leu | Ser | Thr | Ser | Thr | Met | Pro | Lys | Ile |
| | | 65 | | | | | 70 | | | | | 75 | | | 80 |
| Leu | Ala | Leu | Phe | Trp | Phe | Asp | Ser | Arg | Glu | Ile | Ser | Phe | Glu | Ala | Cys |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Thr | Gln | Met | Phe | Phe | Ile | His | Ala | Leu | Ser | Ala | Ile | Glu | Ser | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Leu | Leu | Ala | Met | Ala | Phe | Asp | Arg | Tyr | Val | Ala | Ile | Cys | His | Pro |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Leu | Arg | His | Ala | Ala | Val | Leu | Asn | Asn | Thr | Val | Thr | Ala | Gln | Ile | Gly |
| | | | 130 | | | | 135 | | | | | 140 | | | |
| Ile | Val | Ala | Val | Val | Arg | Gly | Ser | Leu | Phe | Phe | Phe | Pro | Leu | Pro | Leu |
| | | | | | | | 150 | | | | | 155 | | | 160 |
| Leu | Ile | Lys | Arg | Leu | Ala | Phe | Cys | His | Ser | Asn | Val | Leu | Ser | His | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Tyr | Cys | Val | His | Gln | Asp | Val | Met | Lys | Leu | Ala | Tyr | Ala | Asp | Thr | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Pro | Asn | Val | Val | Tyr | Gly | Leu | Thr | Ala | Ile | Leu | Leu | Val | Met | Gly | Val |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Asp | Val | Met | Phe | Ile | Ser | Leu | Ser | Tyr | Phe | Leu | Ile | Ile | Arg | Thr | Val |
| | | | 210 | | | | 215 | | | | | 220 | | | |
| Leu | Gln | Leu | Pro | Ser | Lys | Ser | Glu | Arg | Ala | Lys | Ala | Phe | Gly | Thr | Cys |
| | | | | 225 | | | 230 | | | | | 235 | | | 240 |
| Val | Ser | His | Ile | Gly | Val | Val | Leu | Ala | Phe | Tyr | Val | Pro | Leu | Ile | Gly |
| | | | | 245 | | | | 250 | | | | | 255 | | |
| Leu | Ser | Val | Val | His | Arg | Phe | Gly | Asn | Ser | Leu | His | Pro | Ile | Val | Arg |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Val | Met | Gly | Asp | Ile | Tyr | Leu | Leu | Leu | Pro | Pro | Val | Ile | Asn | Pro |
| | | | 275 | | | | 280 | | | | | 285 | | | |
| Ile | Ile | Tyr | Gly | Ala | Lys | Thr | Lys | Gln | Ile | Arg | Thr | Arg | Val | Leu | Ala |
| | | | 290 | | | | 295 | | | | | 300 | | | |
| Met | Phe | Lys | Ile | Ser | Cys | Asp | Lys | Asp | Leu | Gln | Ala | Val | Gly | Gly | Lys |
| | | | | 305 | | | 310 | | | | | 315 | | | 320 |

<210> 35
 <211> 998
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (2)..(988)

<400> 35

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  Met Ser Ser Thr Leu Gly His Asn Met Glu Ser Pro Asn His Thr Asp
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ggt gac cct tct gtc ttc ttc ctc ctg ggc atc cca ggt ctg gaa caa   97
Val Asp Pro Ser Val Phe Phe Leu Leu Gly Ile Pro Gly Leu Glu Gln
    20             25            30

ttt cat ttg tgg ctc tca ctc cct gtg tgt ggc tta ggc aca gcc aca   145
Phe His Leu Trp Leu Ser Leu Pro Val Cys Gly Leu Gly Thr Ala Thr
    35             40            45

att gtg ggc aat ata act att ctg gtt gtt gtt gcc act gaa cca gtc   193
Ile Val Gly Asn Ile Thr Ile Leu Val Val Val Ala Thr Glu Pro Val
    50             55            60

ttg cac aag cct gtg tac ctt ttt ctg tgc atg ctc tca acc atc gac   241
Leu His Lys Pro Val Tyr Leu Phe Leu Cys Met Leu Ser Thr Ile Asp
    65             70            75            80

ttg gct gcc tct gtc tcc aca gtt ccc aag cta ctg gct atc ttc tgg   289
Leu Ala Ala Ser Val Ser Thr Val Pro Lys Leu Leu Ala Ile Phe Trp
    85             90            95

tgt gga gcc gga cat ata tct gcc tct gcc tgc ctg gca cag atg ttc   337
Cys Gly Ala Gly His Ile Ser Ala Ser Ala Cys Leu Ala Gln Met Phe
   100             105            110

ttc att cat gcc ttc tgc atg atg gag tcc act gtg cta ctg gcc atg   385
Phe Ile His Ala Phe Cys Met Met Glu Ser Thr Val Leu Leu Ala Met
   115             120            125

gcc ttt gat cgc tac gtg gcc atc tgc cac cca ctc cgc tat gcc aca   433
Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Ala Thr
   130             135            140

atc ctc act gac acc atc att gcc cac ata ggg gtg gca gct gta gtg   481
Ile Leu Thr Asp Thr Ile Ile Ala His Ile Gly Val Ala Ala Val Val
  145             150            155            160

cga ggc tcc ctg ctc atg ctc cca tgt ccc ttc ctt att ggg cgt ttg   529
Arg Gly Ser Leu Leu Met Leu Pro Cys Pro Phe Leu Ile Gly Arg Leu
   165             170            175

aac ttc tgc caa agc cat gtg atc cta cac acg tac tgt gag cac atg   577
Asn Phe Cys Gln Ser His Val Ile Leu His Thr Tyr Cys Glu His Met

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| 180 | 185 | 190 | |
|---|-----|-----|-----|
| gct gtg gtg aag ctg gcc tgt gga gac acc agg cct aac cgt gtg tat | | | 625 |
| Ala Val Val Lys Leu Ala Cys Gly Asp Thr Arg Pro Asn Arg Val Tyr | | | |
| 195 | 200 | 205 | |
| ggg ctg aca gct gca ctg ttg gtc att ggg gtt gac ttg ttt tgc att | | | 673 |
| Gly Leu Thr Ala Ala Leu Leu Val Ile Gly Val Asp Leu Phe Cys Ile | | | |
| 210 | 215 | 220 | |
| ggt ctc tcc tat gcc cta agt gca caa gct gtc ctt cgc ctc tca tcc | | | 721 |
| Gly Leu Ser Tyr Ala Leu Ser Ala Gln Ala Val Leu Arg Leu Ser Ser | | | |
| 225 | 230 | 235 | 240 |
| cat gaa gct cgg tcc aag gcc cta ggg acc tgt ggt tcc cat gtc tgt | | | 769 |
| His Glu Ala Arg Ser Lys Ala Leu Gly Thr Cys Gly Ser His Val Cys | | | |
| 245 | 250 | 255 | |
| gtc atc ctc atc tct tat aca cca gcc ctc ttc tcc ttt ttt aca cac | | | 817 |
| Val Ile Leu Ile Ser Tyr Thr Pro Ala Leu Phe Ser Phe Phe Thr His | | | |
| 260 | 265 | 270 | |
| cgc ttt ggc cat cac gtt cca gtc cat att cac att ctt ttg gcc aat | | | 865 |
| Arg Phe Gly His His Val Pro Val His Ile His Ile Leu Leu Ala Asn | | | |
| 275 | 280 | 285 | |
| gtt tat ctg ctt ttg cca cct gct ctt aat cct gtg gta tat gga gtt | | | 913 |
| Val Tyr Leu Leu Leu Pro Pro Ala Leu Asn Pro Val Val Tyr Gly Val | | | |
| 290 | 295 | 300 | |
| aag acc aaa cag atc cgt aaa aga gtt gtc agg gtg ttt caa agt ggg | | | 961 |
| Lys Thr Lys Gln Ile Arg Lys Arg Val Val Arg Val Phe Gln Ser Gly | | | |
| 305 | 310 | 315 | 320 |
| cag gga atg ggc atc aag gca tct gag tgactctgga | | | 998 |
| Gln Gly Met Gly Ile Lys Ala Ser Glu | | | |
| 325 | | | |

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 <212> PRT
 <213> Homo sapiens

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 Phe His Leu Trp Leu Ser Leu Pro Val Cys Gly Leu Gly Thr Ala Thr
 35 40 45
 Ile Val Gly Asn Ile Thr Ile Leu Val Val Val Ala Thr Glu Pro Val
 50 55 60

Leu His Lys Pro Val Tyr Leu Phe Leu Cys Met Leu Ser Thr Ile Asp
 65 70 75 80
 Leu Ala Ala Ser Val Ser Thr Val Pro Lys Leu Leu Ala Ile Phe Trp
 85 90 95
 Cys Gly Ala Gly His Ile Ser Ala Ser Ala Cys Leu Ala Gln Met Phe
 100 105 110
 Phe Ile His Ala Phe Cys Met Met Glu Ser Thr Val Leu Leu Ala Met
 115 120 125
 Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Ala Thr
 130 135 140
 Ile Leu Thr Asp Thr Ile Ile Ala His Ile Gly Val Ala Ala Val Val
 145 150 155 160
 Arg Gly Ser Leu Leu Met Leu Pro Cys Pro Phe Leu Ile Gly Arg Leu
 165 170 175
 Asn Phe Cys Gln Ser His Val Ile Leu His Thr Tyr Cys Glu His Met
 180 185 190
 Ala Val Val Lys Leu Ala Cys Gly Asp Thr Arg Pro Asn Arg Val Tyr
 195 200 205
 Gly Leu Thr Ala Ala Leu Leu Val Ile Gly Val Asp Leu Phe Cys Ile
 210 215 220
 Gly Leu Ser Tyr Ala Leu Ser Ala Gln Ala Val Leu Arg Leu Ser Ser
 225 230 235 240
 His Glu Ala Arg Ser Lys Ala Leu Gly Thr Cys Gly Ser His Val Cys
 245 250 255
 Val Ile Leu Ile Ser Tyr Thr Pro Ala Leu Phe Ser Phe Phe Thr His
 260 265 270
 Arg Phe Gly His His Val Pro Val His Ile His Ile Leu Leu Ala Asn
 275 280 285
 Val Tyr Leu Leu Leu Pro Pro Ala Leu Asn Pro Val Val Tyr Gly Val
 290 295 300
 Lys Thr Lys Gln Ile Arg Lys Arg Val Val Arg Val Phe Gln Ser Gly
 305 310 315 320
 Gln Gly Met Gly Ile Lys Ala Ser Glu
 325

<210> 37
 <211> 998
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 <213> Homo sapiens

<220>
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 <222> (2)..(988)

<400> 37

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a atg tcc agc act ctt ggc cac aac atg gaa tct cct aat cac act gat 49
  Met Ser Ser Thr Leu Gly His Asn Met Glu Ser Pro Asn His Thr Asp
    1             5             10             15

gtt gac cct tct gtc ttc ttc ctc ctg ggc atc cca ggt ctg gaa caa 97
Val Asp Pro Ser Val Phe Phe Leu Leu Gly Ile Pro Gly Leu Glu Gln
          20             25             30

ttt cat ttg tgg ctc tca ctc cct gtg tgt ggc tta ggc aca gcc aca 145
Phe His Leu Trp Leu Ser Leu Pro Val Cys Gly Leu Gly Thr Ala Thr
          35             40             45

att gtg ggc aat ata act att ctg gtt gtt gtt gcc act gaa cca gtc 193
Ile Val Gly Asn Ile Thr Ile Leu Val Val Val Ala Thr Glu Pro Val
          50             55             60

ttg cac aag cct gtg tac ctt ttt ctg tgc atg ctc tca acc atc gac 241
Leu His Lys Pro Val Tyr Leu Phe Leu Cys Met Leu Ser Thr Ile Asp
          65             70             75             80

ttg gct gcc tct gtc tcc aca gtt ccc aag cta ctg gct atc ttc tgg 289
Leu Ala Ala Ser Val Ser Thr Val Pro Lys Leu Leu Ala Ile Phe Trp
          85             90             95

tgt gga gcc gga cat ata tct gcc tct gcc tgc ctg gca cag atg ttc 337
Cys Gly Ala Gly His Ile Ser Ala Ser Ala Cys Leu Ala Gln Met Phe
          100             105             110

ttc att cat gcc ttc tgc atg atg gag tcc act gtg cta ctg gcc atg 385
Phe Ile His Ala Phe Cys Met Met Glu Ser Thr Val Leu Leu Ala Met
          115             120             125

gcc ttt gat cgc tac gtg gcc atc tgc cac cca ctc cgc tat gcc aca 433
Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Ala Thr
          130             135             140

atc ctc act gac acc atc att gcc cac ata ggg gtg gca gct gta gtg 481
Ile Leu Thr Asp Thr Ile Ile Ala His Ile Gly Val Ala Ala Val Val
          145             150             155             160

cga ggc tcc ctg ctc atg ctc cca tgt ccc ttc ctt att ggg cgt ttg 529
Arg Gly Ser Leu Leu Met Leu Pro Cys Pro Phe Leu Ile Gly Arg Leu
          165             170             175

aac ttc tgc caa agc cat gtg atc cta cac acg tac tgt gag cac atg 577
Asn Phe Cys Gln Ser His Val Ile Leu His Thr Tyr Cys Glu His Met
          180             185             190

gct gtg gtg aag ctg gcc tgt gga gac acc agg cct aac cgt gtg tat 625
Ala Val Val Lys Leu Ala Cys Gly Asp Thr Arg Pro Asn Arg Val Tyr
          195             200             205

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ggg ctg aca gct gca ctg ttg gtc att ggg gtt gac ttg ttt tgc att 673
 Gly Leu Thr Ala Ala Leu Leu Val Ile Gly Val Asp Leu Phe Cys Ile
 210 215 220
 ggt ctc tcc tat gcc cta agt gca caa gct gtc ctt cgc ctc tca tcc 721
 Gly Leu Ser Tyr Ala Leu Ser Ala Gln Ala Val Leu Arg Leu Ser Ser
 225 230 235 240
 cat gaa gct cgg tcc aag gcc cta ggg acc tgt ggt tcc cat gtc tgt 769
 His Glu Ala Arg Ser Lys Ala Leu Gly Thr Cys Gly Ser His Val Cys
 245 250 255
 gtc atc ctc atc tct tat aca cca gcc ctc ttc tcc ttt ttt aca cac 817
 Val Ile Leu Ile Ser Tyr Thr Pro Ala Leu Phe Ser Phe Phe Thr His
 260 265 270
 cgc ttt ggc cat cac gtt cca gtc cat att cac att ctt ttg gcc aat 865
 Arg Phe Gly His His Val Pro Val His Ile His Ile Leu Leu Ala Asn
 275 280 285
 gtt tat ctg ctt ttg cca cct gct ctt aat cct gtg gta tat gga gtt 913
 Val Tyr Leu Leu Leu Pro Pro Ala Leu Asn Pro Val Val Tyr Gly Val
 290 295 300
 aag acc aaa cag atc cgt aaa aga gtt gtc agg gtg ttt caa agt ggg 961
 Lys Thr Lys Gln Ile Arg Lys Arg Val Val Arg Val Phe Gln Ser Gly
 305 310 315 320
 cag gga atg ggc atc aag gca tct gag tgactctgga 998
 Gln Gly Met Gly Ile Lys Ala Ser Glu
 325

<210> 38
 <211> 329
 <212> PRT
 <213> Homo sapiens

<400> 38
 Met Ser Ser Thr Leu Gly His Asn Met Glu Ser Pro Asn His Thr Asp
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 Val Asp Pro Ser Val Phe Phe Leu Leu Gly Ile Pro Gly Leu Glu Gln
 20 25 30
 Phe His Leu Trp Leu Ser Leu Pro Val Cys Gly Leu Gly Thr Ala Thr
 35 40 45
 Ile Val Gly Asn Ile Thr Ile Leu Val Val Val Ala Thr Glu Pro Val
 50 55 60
 Leu His Lys Pro Val Tyr Leu Phe Leu Cys Met Leu Ser Thr Ile Asp
 65 70 75 80
 Leu Ala Ala Ser Val Ser Thr Val Pro Lys Leu Leu Ala Ile Phe Trp
 85 90 95

Cys Gly Ala Gly His Ile Ser Ala Ser Ala Cys Leu Ala Gln Met Phe
 100 105 110
 Phe Ile His Ala Phe Cys Met Met Glu Ser Thr Val Leu Leu Ala Met
 115 120 125
 Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Ala Thr
 130 135 140
 Ile Leu Thr Asp Thr Ile Ile Ala His Ile Gly Val Ala Ala Val Val
 145 150 155 160
 Arg Gly Ser Leu Leu Met Leu Pro Cys Pro Phe Leu Ile Gly Arg Leu
 165 170 175
 Asn Phe Cys Gln Ser His Val Ile Leu His Thr Tyr Cys Glu His Met
 180 185 190
 Ala Val Val Lys Leu Ala Cys Gly Asp Thr Arg Pro Asn Arg Val Tyr
 195 200 205
 Gly Leu Thr Ala Ala Leu Leu Val Ile Gly Val Asp Leu Phe Cys Ile
 210 215 220
 Gly Leu Ser Tyr Ala Leu Ser Ala Gln Ala Val Leu Arg Leu Ser Ser
 225 230 235 240
 His Glu Ala Arg Ser Lys Ala Leu Gly Thr Cys Gly Ser His Val Cys
 245 250 255
 Val Ile Leu Ile Ser Tyr Thr Pro Ala Leu Phe Ser Phe Phe Thr His
 260 265 270
 Arg Phe Gly His His Val Pro Val His Ile His Ile Leu Leu Ala Asn
 275 280 285
 Val Tyr Leu Leu Leu Pro Pro Ala Leu Asn Pro Val Val Tyr Gly Val
 290 295 300
 Lys Thr Lys Gln Ile Arg Lys Arg Val Val Arg Val Phe Gln Ser Gly
 305 310 315 320
 Gln Gly Met Gly Ile Lys Ala Ser Glu
 325

<210> 39
 <211> 929
 <212> DNA
 <213> Homo sapiens

<220>
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<400> 39

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| Met Gln Arg Ser Asn His Thr Val Thr Glu Phe Ile Leu Leu Gly | |
| 1 5 10 15 | |
| ttc acc aca gat cca ggg atg caa ctg ggc ctc ttt gtg gtg ttc ctg | 95 |
| Phe Thr Thr Asp Pro Gly Met Gln Leu Gly Leu Phe Val Val Phe Leu | |
| 20 25 30 | |
| ggg gtg tac tgt ctg act gtg gta gga agt agc acc ctc atc gtg ttg | 143 |
| Gly Val Tyr Cys Leu Thr Val Val Gly Ser Ser Thr Leu Ile Val Leu | |
| 35 40 45 | |
| atc tgt aat gac tcc cgc cta cac aca ccc atg tat ttt gtc att gga | 191 |
| Ile Cys Asn Asp Ser Arg Leu His Thr Pro Met Tyr Phe Val Ile Gly | |
| 50 55 60 | |
| aat ctg tca ttt ctg gat ctc tgg tat tct tct gtc cac acc cca aag | 239 |
| Asn Leu Ser Phe Leu Asp Leu Trp Tyr Ser Ser Val His Thr Pro Lys | |
| 65 70 75 | |
| atc cta gtg acc tgc atc tct gaa gac aaa agc atc tcc ttt gct ggc | 287 |
| Ile Leu Val Thr Cys Ile Ser Glu Asp Lys Ser Ile Ser Phe Ala Gly | |
| 80 85 90 95 | |
| tgc ctg tgt cag ttc ttc tct gcc agg ctg gcc tat agt gag tgc tac | 335 |
| Cys Leu Cys Gln Phe Phe Ser Ala Arg Leu Ala Tyr Ser Glu Cys Tyr | |
| 100 105 110 | |
| cta ctg gct gcc atg gct tat gac cac tac gtg gcc atc tcc aag ccc | 383 |
| Leu Leu Ala Ala Met Ala Tyr Asp His Tyr Val Ala Ile Ser Lys Pro | |
| 115 120 125 | |
| ctg ctt tat gct cag acc atg cca agg aga ttg tgc atc tgt ttg gtt | 431 |
| Leu Leu Tyr Ala Gln Thr Met Pro Arg Arg Leu Cys Ile Cys Leu Val | |
| 130 135 140 | |
| tta tat tcc tat act ggg ggt ttt gtc aat gca ata ata tta acc agc | 479 |
| Leu Tyr Ser Tyr Thr Gly Gly Phe Val Asn Ala Ile Ile Leu Thr Ser | |
| 145 150 155 | |
| aac aca ttc aca ttg gat ttt tgt ggt gac aat gtc att gat gac ttt | 527 |
| Asn Thr Phe Thr Leu Asp Phe Cys Gly Asp Asn Val Ile Asp Asp Phe | |
| 160 165 170 175 | |
| ttc tgt gat gtt cca ccc ctc gtg aag ctg gca tgc agt gtg aga gag | 575 |
| Phe Cys Asp Val Pro Pro Leu Val Lys Leu Ala Cys Ser Val Arg Glu | |
| 180 185 190 | |
| agc tac cag gct gtg ctg cac ttc ctt ctg gcc tcc aat gtc atc tcc | 623 |
| Ser Tyr Gln Ala Val Leu His Phe Leu Leu Ala Ser Asn Val Ile Ser | |
| 195 200 205 | |
| cct act gtg ctc atc ctt gcc tct tac ctc tcc atc atc acc acc atc | 671 |
| Pro Thr Val Leu Ile Leu Ala Ser Tyr Leu Ser Ile Ile Thr Thr Ile | |
| 210 215 220 | |

ctg agg atc cac tct acc cag ggc cgc atc aaa gtc ttc tcc aca tgc 719
 Leu Arg Ile His Ser Thr Gln Gly Arg Ile Lys Val Phe Ser Thr Cys
 225 230 235

tcc tcc cac ctg atc tcc gtt acc tta tac tat ggc tcc att ctc tac 767
 Ser Ser His Leu Ile Ser Val Thr Leu Tyr Tyr Gly Ser Ile Leu Tyr
 240 245 250 255

aac tac tcc cgg cca agt tcc agc tac tcc ctc aag agg gac aaa atg 815
 Asn Tyr Ser Arg Pro Ser Ser Ser Tyr Ser Leu Lys Arg Asp Lys Met
 260 265 270

gtt tct acc ttt tat act atg ctg ttc ccc atg ttg aat ccc atg atc 863
 Val Ser Thr Phe Tyr Thr Met Leu Phe Pro Met Leu Asn Pro Met Ile
 275 280 285

tac agt ctg agg agt aaa gac atg aaa gac gct ctg aaa aaa ttc ttc 911
 Tyr Ser Leu Arg Ser Lys Asp Met Lys Asp Ala Leu Lys Lys Phe Phe
 290 295 300

aag tca gca taatccaaa 929
 Lys Ser Ala
 305

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 <212> PRT
 <213> Homo sapiens

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 Thr Thr Asp Pro Gly Met Gln Leu Gly Leu Phe Val Val Phe Leu Gly
 20 25 30
 Val Tyr Cys Leu Thr Val Val Gly Ser Ser Thr Leu Ile Val Leu Ile
 35 40 45
 Cys Asn Asp Ser Arg Leu His Thr Pro Met Tyr Phe Val Ile Gly Asn
 50 55 60
 Leu Ser Phe Leu Asp Leu Trp Tyr Ser Ser Val His Thr Pro Lys Ile
 65 70 75 80
 Leu Val Thr Cys Ile Ser Glu Asp Lys Ser Ile Ser Phe Ala Gly Cys
 85 90 95
 Leu Cys Gln Phe Phe Ser Ala Arg Leu Ala Tyr Ser Glu Cys Tyr Leu
 100 105 110
 Leu Ala Ala Met Ala Tyr Asp His Tyr Val Ala Ile Ser Lys Pro Leu
 115 120 125
 Leu Tyr Ala Gln Thr Met Pro Arg Arg Leu Cys Ile Cys Leu Val Leu
 130 135 140

Tyr Ser Tyr Thr Gly Gly Phe Val Asn Ala Ile Ile Leu Thr Ser Asn
 145 150 155 160
 Thr Phe Thr Leu Asp Phe Cys Gly Asp Asn Val Ile Asp Asp Phe Phe
 165 170 175
 Cys Asp Val Pro Pro Leu Val Lys Leu Ala Cys Ser Val Arg Glu Ser
 180 185 190
 Tyr Gln Ala Val Leu His Phe Leu Leu Ala Ser Asn Val Ile Ser Pro
 195 200 205
 Thr Val Leu Ile Leu Ala Ser Tyr Leu Ser Ile Ile Thr Thr Ile Leu
 210 215 220
 Arg Ile His Ser Thr Gln Gly Arg Ile Lys Val Phe Ser Thr Cys Ser
 225 230 235 240
 Ser His Leu Ile Ser Val Thr Leu Tyr Tyr Gly Ser Ile Leu Tyr Asn
 245 250 255
 Tyr Ser Arg Pro Ser Ser Ser Tyr Ser Leu Lys Arg Asp Lys Met Val
 260 265 270
 Ser Thr Phe Tyr Thr Met Leu Phe Pro Met Leu Asn Pro Met Ile Tyr
 275 280 285
 Ser Leu Arg Ser Lys Asp Met Lys Asp Ala Leu Lys Lys Phe Phe Lys
 290 295 300
 Ser Ala
 305

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<220>
 <221> CDS
 <222> (3)..(932)

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 Met Gly Asn His Thr Thr Val Thr Glu Phe Val Leu Leu Gly Leu
 1 5 10 15
 tca gag acc tgt gag ctg cag atg ctc atc ttc ctg ggg ctc ctc ctg 95
 Ser Glu Thr Cys Glu Leu Gln Met Leu Ile Phe Leu Gly Leu Leu Leu
 20 25 30
 acc tac ctc ctc aca ctg ctg ggg aat ctg gtc atc gtg gtc atc acc 143
 Thr Tyr Leu Leu Thr Leu Leu Gly Asn Leu Val Ile Val Val Ile Thr
 35 40 45

| | |
|---|-----|
| ctc atg gac agg cgc ctc cac acc acc atg tac tac ttc ctc cgc aac | 191 |
| Leu Met Asp Arg Arg Leu His Thr Thr Met Tyr Tyr Phe Leu Arg Asn | |
| 50 55 60 | |
| ttt gct gtc ccg gag atc tgg ttc acc tcg gtc atc ttt ccc aag gtg | 239 |
| Phe Ala Val Pro Glu Ile Trp Phe Thr Ser Val Ile Phe Pro Lys Val | |
| 65 70 75 | |
| ctg gcc aac atc ctc aca gga tac aag caa gac cat tcc ctc cca ggc | 287 |
| Leu Ala Asn Ile Leu Thr Gly Tyr Lys Gln Asp His Ser Leu Pro Gly | |
| 80 85 90 95 | |
| tgc ttc ctg caa agt ttg ctc tat ttt ttc ttg ggc acc aca gag ttc | 335 |
| Cys Phe Leu Gln Ser Leu Leu Tyr Phe Phe Leu Gly Thr Thr Glu Phe | |
| 100 105 110 | |
| ttc ctc ctg gcg gtg atg tcc ttt gac agg tac gtg gcc gta tgt aac | 383 |
| Phe Leu Leu Ala Val Met Ser Phe Asp Arg Tyr Val Ala Val Cys Asn | |
| 115 120 125 | |
| cct ttg cat tat gcc acc atc atg agc aaa agg gtc tgt gtc cag cta | 431 |
| Pro Leu His Tyr Ala Thr Ile Met Ser Lys Arg Val Cys Val Gln Leu | |
| 130 135 140 | |
| gtc ctc tgt tgg tgg atg aca gga ttc ctt ctc atc att att cca agt | 479 |
| Val Leu Cys Trp Trp Met Thr Gly Phe Leu Leu Ile Ile Ile Pro Ser | |
| 145 150 155 | |
| ttt ctt gtc ctt cag cag cca ttc tgt ggc ccc aac atc att aac cat | 527 |
| Phe Leu Val Leu Gln Gln Pro Phe Cys Gly Pro Asn Ile Ile Asn His | |
| 160 165 170 175 | |
| ttc ttc tgt gac aac ttt ccc ctc ttg aaa ctc att tgt gca gac atg | 575 |
| Phe Phe Cys Asp Asn Phe Pro Leu Leu Lys Leu Ile Cys Ala Asp Met | |
| 180 185 190 | |
| act ctg ata gag ctc ctg ggt ttt gtt ata gcc aac gtc agc tta ctg | 623 |
| Thr Leu Ile Glu Leu Leu Gly Phe Val Ile Ala Asn Val Ser Leu Leu | |
| 195 200 205 | |
| ggc act ctg tct atg acg gcc act tgc tat ggc cac atc ctc cac gcc | 671 |
| Gly Thr Leu Ser Met Thr Ala Thr Cys Tyr Gly His Ile Leu His Ala | |
| 210 215 220 | |
| att ctg cac atc ccc tca gcc aaa gag aag cag aaa gcc ttc tcc gcc | 719 |
| Ile Leu His Ile Pro Ser Ala Lys Glu Lys Gln Lys Ala Phe Ser Ala | |
| 225 230 235 | |
| tgc tcc tcc cac atc att gtc gtg tct ctc ttc tat ggc agc tgc atc | 767 |
| Cys Ser Ser His Ile Ile Val Val Ser Leu Phe Tyr Gly Ser Cys Ile | |
| 240 245 250 255 | |
| ttc atg tac att cag tca ggc aag agt gac cag aag gaa gac agg aac | 815 |
| Phe Met Tyr Ile Gln Ser Gly Lys Ser Asp Gln Lys Glu Asp Arg Asn | |
| 260 265 270 | |

aag gtg gcg gca ttg ctt aac acc gtg gtg acc ctg atg ctc aac ccc 863
 Lys Val Ala Ala Leu Leu Asn Thr Val Val Thr Leu Met Leu Asn Pro
 275 280 285

ttc atc tac acc ctg agg aac aaa cag gtg aaa cag gtg ttt agg cag 911
 Phe Ile Tyr Thr Leu Arg Asn Lys Gln Val Lys Gln Val Phe Arg Gln
 290 295 300

cag gtg agc aaa ctc ctc ata taaagct 939
 Gln Val Ser Lys Leu Leu Ile
 305 310

<210> 42
 <211> 310
 <212> PRT
 <213> Homo sapiens

<400> 42
 Met Gly Asn His Thr Thr Val Thr Glu Phe Val Leu Leu Gly Leu Ser
 1 5 10 15

Glu Thr Cys Glu Leu Gln Met Leu Ile Phe Leu Gly Leu Leu Leu Thr
 20 25 30

Tyr Leu Leu Thr Leu Leu Gly Asn Leu Val Ile Val Val Ile Thr Leu
 35 40 45

Met Asp Arg Arg Leu His Thr Thr Met Tyr Tyr Phe Leu Arg Asn Phe
 50 55 60

Ala Val Pro Glu Ile Trp Phe Thr Ser Val Ile Phe Pro Lys Val Leu
 65 70 75 80

Ala Asn Ile Leu Thr Gly Tyr Lys Gln Asp His Ser Leu Pro Gly Cys
 85 90 95

Phe Leu Gln Ser Leu Leu Tyr Phe Phe Leu Gly Thr Thr Glu Phe Phe
 100 105 110

Leu Leu Ala Val Met Ser Phe Asp Arg Tyr Val Ala Val Cys Asn Pro
 115 120 125

Leu His Tyr Ala Thr Ile Met Ser Lys Arg Val Cys Val Gln Leu Val
 130 135 140

Leu Cys Trp Trp Met Thr Gly Phe Leu Leu Ile Ile Ile Pro Ser Phe
 145 150 155 160

Leu Val Leu Gln Gln Pro Phe Cys Gly Pro Asn Ile Ile Asn His Phe
 165 170 175

Phe Cys Asp Asn Phe Pro Leu Leu Lys Leu Ile Cys Ala Asp Met Thr
 180 185 190

Leu Ile Glu Leu Leu Gly Phe Val Ile Ala Asn Val Ser Leu Leu Gly
 195 200 205

Thr Leu Ser Met Thr Ala Thr Cys Tyr Gly His Ile Leu His Ala Ile
 210 215 220
 Leu His Ile Pro Ser Ala Lys Glu Lys Gln Lys Ala Phe Ser Ala Cys
 225 230 235 240
 Ser Ser His Ile Ile Val Val Ser Leu Phe Tyr Gly Ser Cys Ile Phe
 245 250 255
 Met Tyr Ile Gln Ser Gly Lys Ser Asp Gln Lys Glu Asp Arg Asn Lys
 260 265 270
 Val Ala Ala Leu Leu Asn Thr Val Val Thr Leu Met Leu Asn Pro Phe
 275 280 285
 Ile Tyr Thr Leu Arg Asn Lys Gln Val Lys Gln Val Phe Arg Gln Gln
 290 295 300
 Val Ser Lys Leu Leu Ile
 305 310

<210> 43
 <211> 931
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (1) .. (924)

<400> 43
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 Met Lys Asn Lys Arg Asn Val Thr Glu Phe Val Leu Thr Gly Leu Thr
 1 5 10 15
 cag aac cct aaa atg gag aaa gtc atg ttt gca gta ttt ttg gtt ctt 96
 Gln Asn Pro Lys Met Glu Lys Val Met Phe Ala Val Phe Leu Val Leu
 20 25 30
 tac atg ata aca ctt tca ggc aac ctg ctc ctt gtg gtt aca att acc 144
 Tyr Met Ile Thr Leu Ser Gly Asn Leu Leu Leu Val Val Thr Ile Thr
 35 40 45
 acc agc cag gct ctt agc tcc ccc atg tac ttc ttc ctg agc cac ctt 192
 Thr Ser Gln Ala Leu Ser Ser Pro Met Tyr Phe Phe Leu Ser His Leu
 50 55 60
 tct ttg ata gac aca gtt tat tct tct tct tca gct cct aag ttg att 240
 Ser Leu Ile Asp Thr Val Tyr Ser Ser Ser Ser Ala Pro Lys Leu Ile
 65 70 75 80
 gtc gat tcc ctt cat gag aag aaa atc atc tcc ttt aat ggg tgt atg 288
 Val Asp Ser Leu His Glu Lys Lys Ile Ile Ser Phe Asn Gly Cys Met
 85 90 95

| | |
|---|-----|
| gct caa gcc tat gaa gaa cac att ttt ggt gct act gag atc atc ctg | 336 |
| Ala Gln Ala Tyr Glu Glu His Ile Phe Gly Ala Thr Glu Ile Ile Leu | |
| 100 105 110 | |
| ctg aca gtg atg gcc tgt gac aac tat gtg gcc atc tgc aaa cct ctg | 384 |
| Leu Thr Val Met Ala Cys Asp Asn Tyr Val Ala Ile Cys Lys Pro Leu | |
| 115 120 125 | |
| cac tac aca acc atc atg agc cac agc ctg tgc att ctc cta gtg gta | 432 |
| His Tyr Thr Thr Ile Met Ser His Ser Leu Cys Ile Leu Leu Val Val | |
| 130 135 140 | |
| gtg gcc tgg ata gga gga ttt ctc cat gca aat att cag att cta ttt | 480 |
| Val Ala Trp Ile Gly Gly Phe Leu His Ala Asn Ile Gln Ile Leu Phe | |
| 145 150 155 160 | |
| aca gta tgg ctg ccc ttc tgt ggc ccc aat gtc ata gac cac ttc atg | 528 |
| Thr Val Trp Leu Pro Phe Cys Gly Pro Asn Val Ile Asp His Phe Met | |
| 165 170 175 | |
| tgt gac ttg tgc cct ttg tta aaa ctt gtt tgc ctg gac act cat acc | 576 |
| Cys Asp Leu Cys Pro Leu Leu Lys Leu Val Cys Leu Asp Thr His Thr | |
| 180 185 190 | |
| ctt ggt ctc ttt gtt gct gcc aac agt ggg ttc atc tgc tta tta aac | 624 |
| Leu Gly Leu Phe Val Ala Ala Asn Ser Gly Phe Ile Cys Leu Leu Asn | |
| 195 200 205 | |
| ttc ctt ctc tgg gtg gta tcc tat gtg atc atc ttg aga tgt tta aag | 672 |
| Phe Leu Leu Trp Val Val Ser Tyr Val Ile Ile Leu Arg Cys Leu Lys | |
| 210 215 220 | |
| aac tat atc ttg gag ggg agg ggt aaa gcc ctc tcc acc tgt att tct | 720 |
| Asn Tyr Ile Leu Glu Gly Arg Gly Lys Ala Leu Ser Thr Cys Ile Ser | |
| 225 230 235 240 | |
| cac atc ata ata gtt gtc tta ttc ttt gtg cct tgt ata ttt gtg tat | 768 |
| His Ile Ile Ile Val Val Leu Phe Phe Val Pro Cys Ile Phe Val Tyr | |
| 245 250 255 | |
| ctg cac cca gtg aca aac tct gcc gat aaa gct gct gct gta ttt tat | 816 |
| Leu His Pro Val Thr Asn Ser Ala Asp Lys Ala Ala Ala Val Phe Tyr | |
| 260 265 270 | |
| act atg gtg gtc cca atg tta aat cct ttg atc tac aca ctc aga aat | 864 |
| Thr Met Val Val Pro Met Leu Asn Pro Leu Ile Tyr Thr Leu Arg Asn | |
| 275 280 285 | |
| gct gag gta aaa agt gca ata agg aag ctt tgg aga aaa aaa gtt att | 912 |
| Ala Glu Val Lys Ser Ala Ile Arg Lys Leu Trp Arg Lys Lys Val Ile | |
| 290 295 300 | |
| tca gat aat gac taaataa | 931 |
| Ser Asp Asn Asp | |
| 305 | |

<210> 44
 <211> 308
 <212> PRT
 <213> Homo sapiens

<400> 44

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Met Lys Asn Lys Arg Asn Val Thr Glu Phe Val Leu Thr Gly Leu Thr
 1              5              10              15

Gln Asn Pro Lys Met Glu Lys Val Met Phe Ala Val Phe Leu Val Leu
      20              25              30

Tyr Met Ile Thr Leu Ser Gly Asn Leu Leu Leu Val Val Thr Ile Thr
      35              40              45

Thr Ser Gln Ala Leu Ser Ser Pro Met Tyr Phe Phe Leu Ser His Leu
      50              55              60

Ser Leu Ile Asp Thr Val Tyr Ser Ser Ser Ser Ala Pro Lys Leu Ile
      65              70              75              80

Val Asp Ser Leu His Glu Lys Lys Ile Ile Ser Phe Asn Gly Cys Met
      85              90              95

Ala Gln Ala Tyr Glu Glu His Ile Phe Gly Ala Thr Glu Ile Ile Leu
      100             105             110

Leu Thr Val Met Ala Cys Asp Asn Tyr Val Ala Ile Cys Lys Pro Leu
      115             120             125

His Tyr Thr Thr Ile Met Ser His Ser Leu Cys Ile Leu Leu Val Val
      130             135             140

Val Ala Trp Ile Gly Gly Phe Leu His Ala Asn Ile Gln Ile Leu Phe
      145             150             155             160

Thr Val Trp Leu Pro Phe Cys Gly Pro Asn Val Ile Asp His Phe Met
      165             170             175

Cys Asp Leu Cys Pro Leu Leu Lys Leu Val Cys Leu Asp Thr His Thr
      180             185             190

Leu Gly Leu Phe Val Ala Ala Asn Ser Gly Phe Ile Cys Leu Leu Asn
      195             200             205

Phe Leu Leu Trp Val Val Ser Tyr Val Ile Ile Leu Arg Cys Leu Lys
      210             215             220

Asn Tyr Ile Leu Glu Gly Arg Gly Lys Ala Leu Ser Thr Cys Ile Ser
      225             230             235             240

His Ile Ile Ile Val Val Leu Phe Phe Val Pro Cys Ile Phe Val Tyr
      245             250             255

Leu His Pro Val Thr Asn Ser Ala Asp Lys Ala Ala Ala Val Phe Tyr
      260             265             270

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Thr Met Val Val Pro Met Leu Asn Pro Leu Ile Tyr Thr Leu Arg Asn
275 280 285

Ala Glu Val Lys Ser Ala Ile Arg Lys Leu Trp Arg Lys Lys Val Ile
290 295 300

Ser Asp Asn Asp
305

<210> 45
<211> 991
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (22) .. (867)

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aaaacaaaac tgtttgtata a atg gtg ttt tct gtc atc tct aca gcc ctg 51
Met Val Phe Ser Val Ile Ser Thr Ala Leu
1 5 10

gaa ttc aca aac aat tca gag aca agc act atg acg gaa ttt gtt ctc 99
Glu Phe Thr Asn Asn Ser Glu Thr Ser Thr Met Thr Glu Phe Val Leu
15 20 25

ctt ggc ttt cct ggt tgt cag gag atg caa agt ttc ctc ttc tcc ctg 147
Leu Gly Phe Pro Gly Cys Gln Glu Met Gln Ser Phe Leu Phe Ser Leu
30 35 40

ttc ttt gtg atc tat gta ttt acc ata ata gga aat ggg acc att gtc 195
Phe Phe Val Ile Tyr Val Phe Thr Ile Ile Gly Asn Gly Thr Ile Val
45 50 55

tgt gct gtg aga ttg gac aaa cgg ctt cat acc cca atg tat att ctc 243
Cys Ala Val Arg Leu Asp Lys Arg Leu His Thr Pro Met Tyr Ile Leu
60 65 70

cta ggg aac ttt gct ttc ctt gaa atc cgg gaa gtt act tcc act gta 291
Leu Gly Asn Phe Ala Phe Leu Glu Ile Arg Glu Val Thr Ser Thr Val
75 80 85 90

ccc aac atg cta gtc aac ttc ctc tca gag aca aaa acc atc tct ttt 339
Pro Asn Met Leu Val Asn Phe Leu Ser Glu Thr Lys Thr Ile Ser Phe
95 100 105

gtt ggc tgt ttc ctc cag ttc tac ttt ttt act tcc ctt ggt aca ata 387
Val Gly Cys Phe Leu Gln Phe Tyr Phe Phe Thr Ser Leu Gly Thr Ile
110 115 120

gaa gca tac ttc ctc tgc atc atg gca tat gat cgg tac ctt gct atc 435
Glu Ala Tyr Phe Leu Cys Ile Met Ala Tyr Asp Arg Tyr Leu Ala Ile
125 130 135

| | |
|---|-----|
| tgc cgc cca ttg cac tac cca acc atc atg acc cca caa ctc tgc tac | 483 |
| Cys Arg Pro Leu His Tyr Pro Thr Ile Met Thr Pro Gln Leu Cys Tyr | |
| 140 145 150 | |
| | |
| ata ttg atg tct ttt tgc tgg gtg ttt gga ttc ctc agt tac tct gtc | 531 |
| Ile Leu Met Ser Phe Cys Trp Val Phe Gly Phe Leu Ser Tyr Ser Val | |
| 155 160 165 170 | |
| | |
| tcc act gtg caa ctg tct caa ctg cct ttc tgt ggg ccc aac atc atc | 579 |
| Ser Thr Val Gln Leu Ser Gln Leu Pro Phe Cys Gly Pro Asn Ile Ile | |
| 175 180 185 | |
| | |
| aat cac ttt ttg tgt gac atg gac cca ctg atg gct ctg tcc tgt gcc | 627 |
| Asn His Phe Leu Cys Asp Met Asp Pro Leu Met Ala Leu Ser Cys Ala | |
| 190 195 200 | |
| | |
| tca gct cct atc act gag att atc ttc tat atc ctg agc tcc ctc att | 675 |
| Ser Ala Pro Ile Thr Glu Ile Ile Phe Tyr Ile Leu Ser Ser Leu Ile | |
| 205 210 215 | |
| | |
| atc att ctc act ctt ctg tac atc tgt ggc tcc tat atg ctt tac ctg | 723 |
| Ile Ile Leu Thr Leu Leu Tyr Ile Cys Gly Ser Tyr Met Leu Tyr Leu | |
| 220 225 230 | |
| | |
| ata gct gta tta aaa gtc cct tca gca gct ggc cag cag aag gcc ttt | 771 |
| Ile Ala Val Leu Lys Val Pro Ser Ala Ala Gly Gln Gln Lys Ala Phe | |
| 235 240 245 250 | |
| | |
| tcc acc tgt gga tct cat ctg aca gtg gtg tgt tta ttc ttt ggg gcc | 819 |
| Ser Thr Cys Gly Ser His Leu Thr Val Val Cys Leu Phe Phe Gly Ala | |
| 255 260 265 | |
| | |
| cta ctg gca atg tat gtg agc ccc aca act gat aac cca gct gca att | 867 |
| Leu Leu Ala Met Tyr Val Ser Pro Thr Thr Asp Asn Pro Ala Ala Ile | |
| 270 275 280 | |
| | |
| tagaagatta taactttgtt ctattctgtg gtgaccccoct tcttaaacc cctgatttac | 927 |
| | |
| agcttacgaa acaaagagat gaaggctgcg ttgaagaaag tcctgaggat agaatgagaa | 987 |
| | |
| taaa | 991 |

<210> 46

<211> 282

<212> PRT

<213> Homo sapiens

<400> 46

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| Met Val Phe Ser Val Ile Ser Thr Ala Leu Glu Phe Thr Asn Asn Ser |
| 1 5 10 15 |

| |
|---|
| Glu Thr Ser Thr Met Thr Glu Phe Val Leu Leu Gly Phe Pro Gly Cys |
| 20 25 30 |

| |
|---|
| Gln Glu Met Gln Ser Phe Leu Phe Ser Leu Phe Phe Val Ile Tyr Val |
|---|

| | | |
|---|-----|-----|
| 35 | 40 | 45 |
| Phe Thr Ile Ile Gly Asn Gly Thr Ile Val Cys Ala Val Arg Leu Asp | | |
| 50 | 55 | 60 |
| Lys Arg Leu His Thr Pro Met Tyr Ile Leu Leu Gly Asn Phe Ala Phe | | |
| 65 | 70 | 75 |
| 80 | | |
| Leu Glu Ile Arg Glu Val Thr Ser Thr Val Pro Asn Met Leu Val Asn | | |
| 85 | 90 | 95 |
| Phe Leu Ser Glu Thr Lys Thr Ile Ser Phe Val Gly Cys Phe Leu Gln | | |
| 100 | 105 | 110 |
| Phe Tyr Phe Phe Thr Ser Leu Gly Thr Ile Glu Ala Tyr Phe Leu Cys | | |
| 115 | 120 | 125 |
| Ile Met Ala Tyr Asp Arg Tyr Leu Ala Ile Cys Arg Pro Leu His Tyr | | |
| 130 | 135 | 140 |
| Pro Thr Ile Met Thr Pro Gln Leu Cys Tyr Ile Leu Met Ser Phe Cys | | |
| 145 | 150 | 155 |
| 160 | | |
| Trp Val Phe Gly Phe Leu Ser Tyr Ser Val Ser Thr Val Gln Leu Ser | | |
| 165 | 170 | 175 |
| Gln Leu Pro Phe Cys Gly Pro Asn Ile Ile Asn His Phe Leu Cys Asp | | |
| 180 | 185 | 190 |
| Met Asp Pro Leu Met Ala Leu Ser Cys Ala Ser Ala Pro Ile Thr Glu | | |
| 195 | 200 | 205 |
| Ile Ile Phe Tyr Ile Leu Ser Ser Leu Ile Ile Ile Leu Thr Leu Leu | | |
| 210 | 215 | 220 |
| Tyr Ile Cys Gly Ser Tyr Met Leu Tyr Leu Ile Ala Val Leu Lys Val | | |
| 225 | 230 | 235 |
| 240 | | |
| Pro Ser Ala Ala Gly Gln Gln Lys Ala Phe Ser Thr Cys Gly Ser His | | |
| 245 | 250 | 255 |
| Leu Thr Val Val Cys Leu Phe Phe Gly Ala Leu Leu Ala Met Tyr Val | | |
| 260 | 265 | 270 |
| Ser Pro Thr Thr Asp Asn Pro Ala Ala Ile | | |
| 275 | 280 | |

<210> 47
 <211> 933
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(921)

<400> 47

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| atg gag act gaa aac aat aca aca gtg aca gag ttc att att ttg gga | 48 |
| Met Glu Thr Glu Asn Asn Thr Thr Val Thr Glu Phe Ile Ile Leu Gly | |
| 1 5 10 15 | |
| tta aca gac aat cct atg cta tgt gcc att ttc ttc gtg ttt ttt cta | 96 |
| Leu Thr Asp Asn Pro Met Leu Cys Ala Ile Phe Phe Val Phe Phe Leu | |
| 20 25 30 | |
| gca gtt tat ata gtt act ata ccg gga aat att agc ata atc ctc tta | 144 |
| Ala Val Tyr Ile Val Thr Ile Pro Gly Asn Ile Ser Ile Ile Leu Leu | |
| 35 40 45 | |
| atc caa agc agc cca cag ctt cac acg cta atg tac ctt ttt ctc agc | 192 |
| Ile Gln Ser Ser Pro Gln Leu His Thr Leu Met Tyr Leu Phe Leu Ser | |
| 50 55 60 | |
| cat ttg gct tct gtg gac att ggg tat tcc ata tca gtt acg cca atc | 240 |
| His Leu Ala Ser Val Asp Ile Gly Tyr Ser Ile Ser Val Thr Pro Ile | |
| 65 70 75 80 | |
| att ctc atc aat ttc tta aga gag aaa acg act att cct gtc aca ggc | 288 |
| Ile Leu Ile Asn Phe Leu Arg Glu Lys Thr Thr Ile Pro Val Thr Gly | |
| 85 90 95 | |
| tgt ata gca cag ctt ggc tct gat gtc atg ttt gga acc aca gag tgc | 336 |
| Cys Ile Ala Gln Leu Gly Ser Asp Val Met Phe Gly Thr Thr Glu Cys | |
| 100 105 110 | |
| ttc ctg ctg gtc act atg atg gct atc tgc tct ccc ctg ctt tac tcc | 384 |
| Phe Leu Leu Val Thr Met Met Ala Ile Cys Ser Pro Leu Leu Tyr Ser | |
| 115 120 125 | |
| atc caa atg ccc cca gtc gtc tgc ttc ctc cta ctg gga gcc tcc tac | 432 |
| Ile Gln Met Pro Pro Val Val Cys Phe Leu Leu Leu Gly Ala Ser Tyr | |
| 130 135 140 | |
| ctg ggt gga tgc ctg aac gct tcg tct ttt aca ggc tgt ttg atg aac | 480 |
| Leu Gly Gly Cys Leu Asn Ala Ser Ser Phe Thr Gly Cys Leu Met Asn | |
| 145 150 155 160 | |
| ctg tcc ttc tgc ggt cca aat aaa atc aac cac ttt ttc tgt gac ctc | 528 |
| Leu Ser Phe Cys Gly Pro Asn Lys Ile Asn His Phe Phe Cys Asp Leu | |
| 165 170 175 | |
| ttc cca ctc ttg aag ctt tct tgt ggc cat gtt tac att gct gaa ata | 576 |
| Phe Pro Leu Leu Lys Leu Ser Cys Gly His Val Tyr Ile Ala Glu Ile | |
| 180 185 190 | |
| tcc cct gcc atc tcc tgt gca tct gtc ctt atc agc acg ctg ttt acc | 624 |
| Ser Pro Ala Ile Ser Cys Ala Ser Val Leu Ile Ser Thr Leu Phe Thr | |
| 195 200 205 | |
| ata atc gtg tcc tac atc tac atc ctt cac tcc atc ctg aag gtg tgc | 672 |
| Ile Ile Val Ser Tyr Ile Tyr Ile Leu His Ser Ile Leu Lys Val Cys | |
| 210 215 220 | |

| 130 | 135 | 140 |
|---|-----|---------|
| Leu Gly Gly Cys Leu Asn Ala Ser Ser Phe Thr Gly Cys Leu Met Asn | | |
| 145 | 150 | 155 160 |
| Leu Ser Phe Cys Gly Pro Asn Lys Ile Asn His Phe Phe Cys Asp Leu | | |
| | 165 | 170 175 |
| Phe Pro Leu Leu Lys Leu Ser Cys Gly His Val Tyr Ile Ala Glu Ile | | |
| | 180 | 185 190 |
| Ser Pro Ala Ile Ser Cys Ala Ser Val Leu Ile Ser Thr Leu Phe Thr | | |
| | 195 | 200 205 |
| Ile Ile Val Ser Tyr Ile Tyr Ile Leu His Ser Ile Leu Lys Val Cys | | |
| | 210 | 215 220 |
| Ser Thr Glu Gly Arg Lys Lys Ala Phe Ser Thr Cys Ala Ser His Leu | | |
| 225 | 230 | 235 240 |
| Thr Ala Val Thr Leu Phe Tyr Gly Thr Ile Leu Phe Val Tyr Val Met | | |
| | 245 | 250 255 |
| Pro Lys Ser Ser Tyr Ser Ala Asp Gln Val Lys Val Ala Phe Val Ile | | |
| | 260 | 265 270 |
| Tyr Thr Val Val Ile Pro Met Leu Asn Pro Leu Ile Tyr Ser Leu Arg | | |
| | 275 | 280 285 |
| Asn Lys Glu Val Lys Glu Ala Met Arg Lys Leu Met Ala Arg Thr His | | |
| | 290 | 295 300 |
| Trp Phe Ser | | |
| 305 | | |

<210> 49
 <211> 980
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (21) .. (968)

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 atgaatttcc aaactctgac atg gct cct gaa aat ttc acc agg gtc act gag 53
 Met Ala Pro Glu Asn Phe Thr Arg Val Thr Glu
 1 5 10

ttt att ctt aca ggt gtc tct agc tgt cca gag ctc cag att ccc ctc 101
 Phe Ile Leu Thr Gly Val Ser Ser Cys Pro Glu Leu Gln Ile Pro Leu
 15 20 25

ttc ctg gtc ttt ctg gtg ctc tat ggg ctg acc atg gca ggg aac ctg 149
 Phe Leu Val Phe Leu Val Leu Tyr Gly Leu Thr Met Ala Gly Asn Leu

| 30 | 35 | 40 | |
|---|----|----|-----|
| ggc atc atc acc ctc acc agt gtt gac tct cga ctt caa acc ccc atg Gly Ile Ile Thr Leu Thr Ser Val Asp Ser Arg Leu Gln Thr Pro Met 45 50 55 | | | 197 |
| tac ttt ttc ctg caa cat ctg gct ctc att aat ctt ggt aac tct act Tyr Phe Phe Leu Gln His Leu Ala Leu Ile Asn Leu Gly Asn Ser Thr 60 65 70 75 | | | 245 |
| gtc att gcc cct aaa atg ctg att aac ttt tta gta aag aag aaa act Val Ile Ala Pro Lys Met Leu Ile Asn Phe Leu Val Lys Lys Lys Thr 80 85 90 | | | 293 |
| acc tca ttc tat gaa tgt gcc acc caa ctg gga ggg ttc ttg ttc ttt Thr Ser Phe Tyr Glu Cys Ala Thr Gln Leu Gly Gly Phe Leu Phe Phe 95 100 105 | | | 341 |
| att gta tgc gag gta atc atg ctg gct ttg atg gcc tgt gac cgc tat Ile Val Ser Glu Val Ile Met Leu Ala Leu Met Ala Cys Asp Arg Tyr 110 115 120 | | | 389 |
| gtg gct att tgt aac cct ctg ctg tac atg gtg gtg gtg tct cgg cgg Val Ala Ile Cys Asn Pro Leu Leu Tyr Met Val Val Val Ser Arg Arg 125 130 135 | | | 437 |
| ctc tgc ctc ctg ctg gtc tcc ctc aca tac ctc tat ggc ttt tct aca Leu Cys Leu Leu Leu Val Ser Leu Thr Tyr Leu Tyr Gly Phe Ser Thr 140 145 150 155 | | | 485 |
| gct att gtg gtt tca tct tat gta ttc tct gtg tct tat tgc tct tct Ala Ile Val Val Ser Ser Tyr Val Phe Ser Val Ser Tyr Cys Ser Ser 160 165 170 | | | 533 |
| aat ata atc aat cat ttt tac tgt gat aat gtt cct ctg tta gca tta Asn Ile Ile Asn His Phe Tyr Cys Asp Asn Val Pro Leu Leu Ala Leu 175 180 185 | | | 581 |
| tct tgc tct gat act tac tta cca gaa aca gtt gtc ttt ata tct gca Ser Cys Ser Asp Thr Tyr Leu Pro Glu Thr Val Val Phe Ile Ser Ala 190 195 200 | | | 629 |
| gca aca aat gtg gtt ggt tcc ttg att ata gtt cta gta tct tat ttc Ala Thr Asn Val Val Gly Ser Leu Ile Ile Val Leu Val Ser Tyr Phe 205 210 215 | | | 677 |
| aat att gtt ttg tct att tta aaa ata tgt tca tca gaa gga agg aaa Asn Ile Val Leu Ser Ile Leu Lys Ile Cys Ser Ser Glu Gly Arg Lys 220 225 230 235 | | | 725 |
| aaa gcc ttt tct acc tgt gct tca cat atg atg gca gtc aca att ttt Lys Ala Phe Ser Thr Cys Ala Ser His Met Met Ala Val Thr Ile Phe 240 245 250 | | | 773 |
| tat ggg aca ttg cta ttc atg tat gtg cag ccc cga agt aac cat tca Tyr Gly Thr Leu Leu Phe Met Tyr Val Gln Pro Arg Ser Asn His Ser 255 260 265 | | | 821 |

ttg gat act gat gat aag atg gct tct gtg ttt tac acg ttg gta att 869
 Leu Asp Thr Asp Asp Lys Met Ala Ser Val Phe Tyr Thr Leu Val Ile
 270 275 280

cct atg ctg aat ccc ttg atc tac agc ctg agg aat aag gat gtg aag 917
 Pro Met Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys
 285 290 295

act gct cta cag aga ttc atg aca aat ctg tgc tat tcc ttt aaa aca 965
 Thr Ala Leu Gln Arg Phe Met Thr Asn Leu Cys Tyr Ser Phe Lys Thr
 300 305 310 315

atg taatttttaa ca 980
 Met

<210> 50
 <211> 316
 <212> PRT
 <213> Homo sapiens

<400> 50
 Met Ala Pro Glu Asn Phe Thr Arg Val Thr Glu Phe Ile Leu Thr Gly
 1 5 10 15

Val Ser Ser Cys Pro Glu Leu Gln Ile Pro Leu Phe Leu Val Phe Leu
 20 25 30

Val Leu Tyr Gly Leu Thr Met Ala Gly Asn Leu Gly Ile Ile Thr Leu
 35 40 45

Thr Ser Val Asp Ser Arg Leu Gln Thr Pro Met Tyr Phe Phe Leu Gln
 50 55 60

His Leu Ala Leu Ile Asn Leu Gly Asn Ser Thr Val Ile Ala Pro Lys
 65 70 75 80

Met Leu Ile Asn Phe Leu Val Lys Lys Lys Thr Thr Ser Phe Tyr Glu
 85 90 95

Cys Ala Thr Gln Leu Gly Gly Phe Leu Phe Phe Ile Val Ser Glu Val
 100 105 110

Ile Met Leu Ala Leu Met Ala Cys Asp Arg Tyr Val Ala Ile Cys Asn
 115 120 125

Pro Leu Leu Tyr Met Val Val Val Ser Arg Arg Leu Cys Leu Leu Leu
 130 135 140

Val Ser Leu Thr Tyr Leu Tyr Gly Phe Ser Thr Ala Ile Val Val Ser
 145 150 155 160

Ser Tyr Val Phe Ser Val Ser Tyr Cys Ser Ser Asn Ile Ile Asn His
 165 170 175

Phe Tyr Cys Asp Asn Val Pro Leu Leu Ala Leu Ser Cys Ser Asp Thr

| 180 | 185 | 190 |
|-----------------------------|-------------------------|---------------------|
| Tyr Leu Pro Glu Thr Val Val | Phe Ile Ser Ala Ala Thr | Asn Val Val |
| 195 | 200 | 205 |
| Gly Ser Leu Ile Ile Val | Leu Val Ser Tyr Phe | Asn Ile Val Leu Ser |
| 210 | 215 | 220 |
| Ile Leu Lys Ile Cys Ser Ser | Glu Gly Arg Lys Lys | Ala Phe Ser Thr |
| 225 | 230 | 235 240 |
| Cys Ala Ser His Met Met | Ala Val Thr Ile Phe | Tyr Gly Thr Leu Leu |
| 245 | 250 | 255 |
| Phe Met Tyr Val Gln Pro | Arg Ser Asn His Ser | Leu Asp Thr Asp Asp |
| 260 | 265 | 270 |
| Lys Met Ala Ser Val Phe | Tyr Thr Leu Val Ile | Pro Met Leu Asn Pro |
| 275 | 280 | 285 |
| Leu Ile Tyr Ser Leu Arg | Asn Lys Asp Val Lys | Thr Ala Leu Gln Arg |
| 290 | 295 | 300 |
| Phe Met Thr Asn Leu Cys | Tyr Ser Phe Lys Thr | Met |
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 Met Ala Pro Glu Asn Phe Thr Arg Val Thr Glu
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ttt att ctt aca ggt gtc tct agc tgt cca gag ctc cag att ccc ctc 101
 Phe Ile Leu Thr Gly Val Ser Ser Cys Pro Glu Leu Gln Ile Pro Leu
 15 20 25

ttc ctg gtc ttt ctg gtg ctc tat ggg ctg acc atg gca ggg aac ctg 149
 Phe Leu Val Phe Leu Val Leu Tyr Gly Leu Thr Met Ala Gly Asn Leu
 30 35 40

ggc atc atc acc ctc acc agt gtt gac tct cga ctt caa acc ccc atg 197
 Gly Ile Ile Thr Leu Thr Ser Val Asp Ser Arg Leu Gln Thr Pro Met
 45 50 55

tac ttt ttc ctg caa cat ctg gct ctc att aat ctt ggt aac tct act 245
 Tyr Phe Phe Leu Gln His Leu Ala Leu Ile Asn Leu Gly Asn Ser Thr
 60 65 70 75

| | |
|---|-----|
| gtc att gcc cct aaa atg ctg att aac ttt tta gta aag aag aaa act | 293 |
| Val Ile Ala Pro Lys Met Leu Ile Asn Phe Leu Val Lys Lys Lys Thr | |
| 80 85 90 | |
| acc tca ttc tat gaa tgt gcc acc caa ctg gga ggg ttc ttg ttc ttt | 341 |
| Thr Ser Phe Tyr Glu Cys Ala Thr Gln Leu Gly Gly Phe Leu Phe Phe | |
| 95 100 105 | |
| att gta tgc gag gta atc atg ctg gct ttg atg gcc tgt gac cgc tat | 389 |
| Ile Val Ser Glu Val Ile Met Leu Ala Leu Met Ala Cys Asp Arg Tyr | |
| 110 115 120 | |
| gtg gct att tgt aac cct ctg ctg tac atg gtg gtg gtg tct cgg cgg | 437 |
| Val Ala Ile Cys Asn Pro Leu Leu Tyr Met Val Val Val Ser Arg Arg | |
| 125 130 135 | |
| ctc tgc ctc ctg ctg gtc tcc ctc aca tac ctc tat ggc ttt tct aca | 485 |
| Leu Cys Leu Leu Leu Val Ser Leu Thr Tyr Leu Tyr Gly Phe Ser Thr | |
| 140 145 150 155 | |
| gct att gtg gtt tca tct tat gta ttc tct gtg tct tat tgc tct tct | 533 |
| Ala Ile Val Val Ser Ser Tyr Val Phe Ser Val Ser Tyr Cys Ser Ser | |
| 160 165 170 | |
| aat ata atc aat cat ttt tac tgt gat aat gtt cct ctg tta gca tta | 581 |
| Asn Ile Ile Asn His Phe Tyr Cys Asp Asn Val Pro Leu Leu Ala Leu | |
| 175 180 185 | |
| tct tgc tct gat act tac tta cca gaa aca gtt gtc ttt ata tct gca | 629 |
| Ser Cys Ser Asp Thr Tyr Leu Pro Glu Thr Val Val Phe Ile Ser Ala | |
| 190 195 200 | |
| gca aca aat gtg gtt ggt tcc ttg att ata gtt cta gta tct tat ttc | 677 |
| Ala Thr Asn Val Val Gly Ser Leu Ile Ile Val Leu Val Ser Tyr Phe | |
| 205 210 215 | |
| aat att gtt ttg tct att tta aaa ata tgt tca tca gaa gga agg aaa | 725 |
| Asn Ile Val Leu Ser Ile Leu Lys Ile Cys Ser Ser Glu Gly Arg Lys | |
| 220 225 230 235 | |
| aaa gcc ttt tct acc tgt gct tca cat atg atg gca gtc aca att ttt | 773 |
| Lys Ala Phe Ser Thr Cys Ala Ser His Met Met Ala Val Thr Ile Phe | |
| 240 245 250 | |
| tat ggg aca ttg cta ttc atg tat gtg cag ccc cga agt aac cat tca | 821 |
| Tyr Gly Thr Leu Leu Phe Met Tyr Val Gln Pro Arg Ser Asn His Ser | |
| 255 260 265 | |
| ttg gat act gat gat aag atg gct tct gtg ttt tac acg ttg gta att | 869 |
| Leu Asp Thr Asp Asp Lys Met Ala Ser Val Phe Tyr Thr Leu Val Ile | |
| 270 275 280 | |
| cct atg ctg aat ccc ttg atc tac agc ctg agg aat aag gat gtg aag | 917 |
| Pro Met Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys | |
| 285 290 295 | |

act gct cta cag aga ttc atg aca aat ctg tgc tat tcc ttt aaa aca 965
 Thr Ala Leu Gln Arg Phe Met Thr Asn Leu Cys Tyr Ser Phe Lys Thr
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atg taatttttaaa ca 980
 Met

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Val Ser Ser Cys Pro Glu Leu Gln Ile Pro Leu Phe Leu Val Phe Leu
 20 25 30

Val Leu Tyr Gly Leu Thr Met Ala Gly Asn Leu Gly Ile Ile Thr Leu
 35 40 45

Thr Ser Val Asp Ser Arg Leu Gln Thr Pro Met Tyr Phe Phe Leu Gln
 50 55 60

His Leu Ala Leu Ile Asn Leu Gly Asn Ser Thr Val Ile Ala Pro Lys
 65 70 75 80

Met Leu Ile Asn Phe Leu Val Lys Lys Lys Thr Thr Ser Phe Tyr Glu
 85 90 95

Cys Ala Thr Gln Leu Gly Gly Phe Leu Phe Phe Ile Val Ser Glu Val
 100 105 110

Ile Met Leu Ala Leu Met Ala Cys Asp Arg Tyr Val Ala Ile Cys Asn
 115 120 125

Pro Leu Leu Tyr Met Val Val Val Ser Arg Arg Leu Cys Leu Leu Leu
 130 135 140

Val Ser Leu Thr Tyr Leu Tyr Gly Phe Ser Thr Ala Ile Val Val Ser
 145 150 155 160

Ser Tyr Val Phe Ser Val Ser Tyr Cys Ser Ser Asn Ile Ile Asn His
 165 170 175

Phe Tyr Cys Asp Asn Val Pro Leu Leu Ala Leu Ser Cys Ser Asp Thr
 180 185 190

Tyr Leu Pro Glu Thr Val Val Phe Ile Ser Ala Ala Thr Asn Val Val
 195 200 205

Gly Ser Leu Ile Ile Val Leu Val Ser Tyr Phe Asn Ile Val Leu Ser
 210 215 220

Ile Leu Lys Ile Cys Ser Ser Glu Gly Arg Lys Lys Ala Phe Ser Thr

| | | | |
|---|-----|-----|-----|
| 225 | 230 | 235 | 240 |
| Cys Ala Ser His Met Met Ala Val Thr Ile Phe Tyr Gly Thr Leu Leu | | | |
| | 245 | 250 | 255 |
| Phe Met Tyr Val Gln Pro Arg Ser Asn His Ser Leu Asp Thr Asp Asp | | | |
| | 260 | 265 | 270 |
| Lys Met Ala Ser Val Phe Tyr Thr Leu Val Ile Pro Met Leu Asn Pro | | | |
| | 275 | 280 | 285 |
| Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Thr Ala Leu Gln Arg | | | |
| | 290 | 295 | 300 |
| Phe Met Thr Asn Leu Cys Tyr Ser Phe Lys Thr Met | | | |
| 305 | 310 | 315 | |

<210> 53
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 <213> Homo sapiens

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| ct atg gag cag agc aat tat tcc gtg tat gcc gac ttt atc ctt ctg | 47 |
| Met Glu Gln Ser Asn Tyr Ser Val Tyr Ala Asp Phe Ile Leu Leu | |
| 1 5 10 15 | |
| ggt ttg ttc agc aac gcc cgt ttc ccc tgg ctt ctc ttt gcc ctc att | 95 |
| Gly Leu Phe Ser Asn Ala Arg Phe Pro Trp Leu Leu Phe Ala Leu Ile | |
| 20 25 30 | |
| ctc ctg gtc ttt gtg acc tcc ata gcc agc aac gtg gtc aag atc att | 143 |
| Leu Leu Val Phe Val Thr Ser Ile Ala Ser Asn Val Val Lys Ile Ile | |
| 35 40 45 | |
| ctc atc cac ata gac tcc cgc ctc cac acc ccc atg tac ttc ctg ctc | 191 |
| Leu Ile His Ile Asp Ser Arg Leu His Thr Pro Met Tyr Phe Leu Leu | |
| 50 55 60 | |
| agc cag ctc tcc ctc agg gac atc ttg tat att tcc acc att gtg ccc | 239 |
| Ser Gln Leu Ser Leu Arg Asp Ile Leu Tyr Ile Ser Thr Ile Val Pro | |
| 65 70 75 | |
| aaa atg ctg gtc gac cag gtg atg agc cag aga gcc att tcc ttt gca | 287 |
| Lys Met Leu Val Asp Gln Val Met Ser Gln Arg Ala Ile Ser Phe Ala | |
| 80 85 90 95 | |
| gga tgc act gcc caa cac ttc ctc tac ttg acc tta gca ggg gct gag | 335 |
| Gly Cys Thr Ala Gln His Phe Leu Tyr Leu Thr Leu Ala Gly Ala Glu | |
| 100 105 110 | |

| | |
|---|-----|
| ttc ttc ctc cta gga ctc atg tcc tgt gat cgc tac gta gcc atc tgc | 383 |
| Phe Phe Leu Leu Gly Leu Met Ser Cys Asp Arg Tyr Val Ala Ile Cys | |
| 115 120 125 | |
| aac cct ctg cac tat cct gac ctc atg agc cgc aag atc tgc tgg ttg | 431 |
| Asn Pro Leu His Tyr Pro Asp Leu Met Ser Arg Lys Ile Cys Trp Leu | |
| 130 135 140 | |
| att gtg gcg gca gcc tgg ctg gga ggg tct atc gat ggt ttc ttg ctc | 479 |
| Ile Val Ala Ala Ala Trp Leu Gly Gly Ser Ile Asp Gly Phe Leu Leu | |
| 145 150 155 | |
| acc ccc gtc acc atg cag ttc ccc ttc tgt gcc tct cgg gag atc aac | 527 |
| Thr Pro Val Thr Met Gln Phe Pro Phe Cys Ala Ser Arg Glu Ile Asn | |
| 160 165 170 175 | |
| cac ttc ttc tgc gag gtg cct gcc ctt ctg aag ctc tcc tgc acg gac | 575 |
| His Phe Phe Cys Glu Val Pro Ala Leu Leu Lys Leu Ser Cys Thr Asp | |
| 180 185 190 | |
| aca tca gcc tac gag aca gcc atg tat gtc tgc tgt att atg atg ctc | 623 |
| Thr Ser Ala Tyr Glu Thr Ala Met Tyr Val Cys Cys Ile Met Met Leu | |
| 195 200 205 | |
| ctc atc cct ttc tct gtg atc tcg ggc tct tac aca aga att ctc att | 671 |
| Leu Ile Pro Phe Ser Val Ile Ser Gly Ser Tyr Thr Arg Ile Leu Ile | |
| 210 215 220 | |
| act gtt tat agg atg agc gag gca gag ggg agg cga aag gct gtg gcc | 719 |
| Thr Val Tyr Arg Met Ser Glu Ala Glu Gly Arg Arg Lys Ala Val Ala | |
| 225 230 235 | |
| acc tgc tcc tca cac atg gtg gtt gtc agc ctc ttc tat ggg gct gcc | 767 |
| Thr Cys Ser Ser His Met Val Val Val Ser Leu Phe Tyr Gly Ala Ala | |
| 240 245 250 255 | |
| atg tac aca tac gtg ctg cct cat tct tac cac acc cct gag cag gac | 815 |
| Met Tyr Thr Tyr Val Leu Pro His Ser Tyr His Thr Pro Glu Gln Asp | |
| 260 265 270 | |
| aaa gct gta tct gcc ttc tac acc atc ctc act ccc atg ctc aat cca | 863 |
| Lys Ala Val Ser Ala Phe Tyr Thr Ile Leu Thr Pro Met Leu Asn Pro | |
| 275 280 285 | |
| ctc att tac agc ctt agg aac aag gat gtc acg ggg gcc cta cag aag | 911 |
| Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Thr Gly Ala Leu Gln Lys | |
| 290 295 300 | |
| gtt gtt ggg agg tgt gtg tcc tca gga aag gta acc act ttc taaac | 958 |
| Val Val Gly Arg Cys Val Ser Ser Gly Lys Val Thr Thr Phe | |
| 305 310 315 | |

<210> 54
 <211> 317
 <212> PRT
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<400> 54

Met Glu Gln Ser Asn Tyr Ser Val Tyr Ala Asp Phe Ile Leu Leu Gly
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Leu Phe Ser Asn Ala Arg Phe Pro Trp Leu Leu Phe Ala Leu Ile Leu
20 25 30
Leu Val Phe Val Thr Ser Ile Ala Ser Asn Val Val Lys Ile Ile Leu
35 40 45
Ile His Ile Asp Ser Arg Leu His Thr Pro Met Tyr Phe Leu Leu Ser
50 55 60
Gln Leu Ser Leu Arg Asp Ile Leu Tyr Ile Ser Thr Ile Val Pro Lys
65 70 75 80
Met Leu Val Asp Gln Val Met Ser Gln Arg Ala Ile Ser Phe Ala Gly
85 90 95
Cys Thr Ala Gln His Phe Leu Tyr Leu Thr Leu Ala Gly Ala Glu Phe
100 105 110
Phe Leu Leu Gly Leu Met Ser Cys Asp Arg Tyr Val Ala Ile Cys Asn
115 120 125
Pro Leu His Tyr Pro Asp Leu Met Ser Arg Lys Ile Cys Trp Leu Ile
130 135 140
Val Ala Ala Ala Trp Leu Gly Gly Ser Ile Asp Gly Phe Leu Leu Thr
145 150 155 160
Pro Val Thr Met Gln Phe Pro Phe Cys Ala Ser Arg Glu Ile Asn His
165 170 175
Phe Phe Cys Glu Val Pro Ala Leu Leu Lys Leu Ser Cys Thr Asp Thr
180 185 190
Ser Ala Tyr Glu Thr Ala Met Tyr Val Cys Cys Ile Met Met Leu Leu
195 200 205
Ile Pro Phe Ser Val Ile Ser Gly Ser Tyr Thr Arg Ile Leu Ile Thr
210 215 220
Val Tyr Arg Met Ser Glu Ala Glu Gly Arg Arg Lys Ala Val Ala Thr
225 230 235 240
Cys Ser Ser His Met Val Val Val Ser Leu Phe Tyr Gly Ala Ala Met
245 250 255
Tyr Thr Tyr Val Leu Pro His Ser Tyr His Thr Pro Glu Gln Asp Lys
260 265 270
Ala Val Ser Ala Phe Tyr Thr Ile Leu Thr Pro Met Leu Asn Pro Leu
275 280 285
Ile Tyr Ser Leu Arg Asn Lys Asp Val Thr Gly Ala Leu Gln Lys Val

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290                               295                               300
Val Gly Arg Cys Val Ser Ser Gly Lys Val Thr Thr Phe
305                               310                               315

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<213> Homo sapiens

<220>
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            1                               5                               10

ttg gat ttc atc ctc atg gga ctc ttc aga cga tcc aaa cat cca gct      97
Leu Asp Phe Ile Leu Met Gly Leu Phe Arg Arg Ser Lys His Pro Ala
      15                               20                               25

cta ctt agt gtg gtc atc ttt gtg gtt ttc ctg atg gcg ttg tct gaa      145
Leu Leu Ser Val Val Ile Phe Val Val Phe Leu Met Ala Leu Ser Glu
      30                               35                               40                               45

aat gct gtc ctg atc ctt ctg ata cac tgt gac acc tac ctc cac acc      193
Asn Ala Val Leu Ile Leu Leu Ile His Cys Asp Thr Tyr Leu His Thr
            50                               55                               60

ccc atg tac ttt ttc atc agt caa ttg tct ctc atg gac atg gcg tac      241
Pro Met Tyr Phe Phe Ile Ser Gln Leu Ser Leu Met Asp Met Ala Tyr
            65                               70                               75

att tct gtc act gtg ccc aag atg ctc ctg gac cag gtc atg ggt gtg      289
Ile Ser Val Thr Val Pro Lys Met Leu Leu Asp Gln Val Met Gly Val
            80                               85                               90

aat aag atc tca gcc cct gag tgt ggg atg cag atg ttc ctc tat ctg      337
Asn Lys Ile Ser Ala Pro Glu Cys Gly Met Gln Met Phe Leu Tyr Leu
            95                               100                               105

aca cta gca ggt tcg gaa ttt ttc ctt cta gcc acc atg gcc tat gac      385
Thr Leu Ala Gly Ser Glu Phe Phe Leu Leu Ala Thr Met Ala Tyr Asp
      110                               115                               120                               125

cgc tac gtg gcc atc tgc cat cct ctc cgt tac cct gtc ctc atg aac      433
Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Pro Val Leu Met Asn
            130                               135                               140

cat agg gtc tgt ctt ttc ctg gca tcg ggc tgc tgg ttc ctg ggc tca      481
His Arg Val Cys Leu Phe Leu Ala Ser Gly Cys Trp Phe Leu Gly Ser
            145                               150                               155

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gtg gat ggc ttc atg ctc act ccc atc acc atg agc ttc ccc ttc tgc 529
 Val Asp Gly Phe Met Leu Thr Pro Ile Thr Met Ser Phe Pro Phe Cys
 160 165 170

aga tcc tgg gag att cat cat ttc ttc tgt gaa gtc cct gct gta acg 577
 Arg Ser Trp Glu Ile His His Phe Phe Cys Glu Val Pro Ala Val Thr
 175 180 185

atc ctg tcc tgc tca gac acc tca ctc tat gag acc ctc atg tac cta 625
 Ile Leu Ser Cys Ser Asp Thr Ser Leu Tyr Glu Thr Leu Met Tyr Leu
 190 195 200 205

tgc tgt gtc ctc atg ctc ctc atc cct gtg acg atc att tca agc tcc 673
 Cys Cys Val Leu Met Leu Leu Ile Pro Val Thr Ile Ile Ser Ser Ser
 210 215 220

tat tta ctc atc ctc ctc acc atc cac agg atg aac tca gca gag ggc 721
 Tyr Leu Leu Ile Leu Leu Thr Ile His Arg Met Asn Ser Ala Glu Gly
 225 230 235

cgg aaa aag gcc ttt gcc acc tgc tcc tcc cac ctg act gtg gtc atc 769
 Arg Lys Lys Ala Phe Ala Thr Cys Ser Ser His Leu Thr Val Val Ile
 240 245 250

ctc ttc tat ggg gct gcc gtc tac acc tac atg ctc ccc agc tcc tac 817
 Leu Phe Tyr Gly Ala Ala Val Tyr Thr Tyr Met Leu Pro Ser Ser Tyr
 255 260 265

cac acc cct gag aag gac atg atg gta tct gtc ttc tat acc atc ctc 865
 His Thr Pro Glu Lys Asp Met Met Val Ser Val Phe Tyr Thr Ile Leu
 270 275 280 285

act ccg gtg ctg aac cct tta atc tat agt ctt agg aat aag gat gtc 913
 Thr Pro Val Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val
 290 295 300

atg ggg gct ctg aag aaa atg tta act gtg aga ttc gtc ctt taggaaat 963
 Met Gly Ala Leu Lys Lys Met Leu Thr Val Arg Phe Val Leu
 305 310 315

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Ile Leu Met Gly Leu Phe Arg Arg Ser Lys His Pro Ala Leu Leu Ser
 20 25 30

Val Val Ile Phe Val Val Phe Leu Met Ala Leu Ser Glu Asn Ala Val
 35 40 45

Leu Ile Leu Leu Ile His Cys Asp Thr Tyr Leu His Thr Pro Met Tyr

| 50 | 55 | 60 |
|---|-----|---------|
| Phe Phe Ile Ser Gln Leu Ser Leu Met Asp Met Ala Tyr Ile Ser Val | | |
| 65 | 70 | 75 80 |
| Thr Val Pro Lys Met Leu Leu Asp Gln Val Met Gly Val Asn Lys Ile | | |
| | 85 | 90 95 |
| Ser Ala Pro Glu Cys Gly Met Gln Met Phe Leu Tyr Leu Thr Leu Ala | | |
| | 100 | 105 110 |
| Gly Ser Glu Phe Phe Leu Leu Ala Thr Met Ala Tyr Asp Arg Tyr Val | | |
| | 115 | 120 125 |
| Ala Ile Cys His Pro Leu Arg Tyr Pro Val Leu Met Asn His Arg Val | | |
| | 130 | 135 140 |
| Cys Leu Phe Leu Ala Ser Gly Cys Trp Phe Leu Gly Ser Val Asp Gly | | |
| 145 | 150 | 155 160 |
| Phe Met Leu Thr Pro Ile Thr Met Ser Phe Pro Phe Cys Arg Ser Trp | | |
| | 165 | 170 175 |
| Glu Ile His His Phe Phe Cys Glu Val Pro Ala Val Thr Ile Leu Ser | | |
| | 180 | 185 190 |
| Cys Ser Asp Thr Ser Leu Tyr Glu Thr Leu Met Tyr Leu Cys Cys Val | | |
| | 195 | 200 205 |
| Leu Met Leu Leu Ile Pro Val Thr Ile Ile Ser Ser Ser Tyr Leu Leu | | |
| | 210 | 215 220 |
| Ile Leu Leu Thr Ile His Arg Met Asn Ser Ala Glu Gly Arg Lys Lys | | |
| 225 | 230 | 235 240 |
| Ala Phe Ala Thr Cys Ser Ser His Leu Thr Val Val Ile Leu Phe Tyr | | |
| | 245 | 250 255 |
| Gly Ala Ala Val Tyr Thr Tyr Met Leu Pro Ser Ser Tyr His Thr Pro | | |
| | 260 | 265 270 |
| Glu Lys Asp Met Met Val Ser Val Phe Tyr Thr Ile Leu Thr Pro Val | | |
| | 275 | 280 285 |
| Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Asp Val Met Gly Ala | | |
| | 290 | 295 300 |
| Leu Lys Lys Met Leu Thr Val Arg Phe Val Leu | | |
| 305 | 310 | 315 |

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<220>
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<400> 57

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| Met Glu Ala Glu Asn Leu Thr Glu Leu Ser Lys Phe Leu Leu Leu | |
| 1 5 10 15 | |
| gga ctc tca gat gat cct gaa ctg cag ccc gtc ctc ttt ggg ctg ttc | 97 |
| Gly Leu Ser Asp Asp Pro Glu Leu Gln Pro Val Leu Phe Gly Leu Phe | |
| 20 25 30 | |
| ctg tcc atg tac ctg gtc acg gtg ctg ggg aac ctg ctc atc att ctg | 145 |
| Leu Ser Met Tyr Leu Val Thr Val Leu Gly Asn Leu Leu Ile Ile Leu | |
| 35 40 45 | |
| gcc gtc agc tct gac tcc cac ctc cac acc ccc atg tac ttc ttc ctc | 193 |
| Ala Val Ser Ser Asp Ser His Leu His Thr Pro Met Tyr Phe Phe Leu | |
| 50 55 60 | |
| tcc aac ctg tcc ttt gtt gac atc tgt ttc atc tcc acc aca gtc ccc | 241 |
| Ser Asn Leu Ser Phe Val Asp Ile Cys Phe Ile Ser Thr Thr Val Pro | |
| 65 70 75 | |
| aag atg cta gtg agc atc cag gca cgg agc aaa gac atc tcc tac atg | 289 |
| Lys Met Leu Val Ser Ile Gln Ala Arg Ser Lys Asp Ile Ser Tyr Met | |
| 80 85 90 95 | |
| ggg tgc ctc act cag gtg tat ttt tta atg atg ttt gct gga atg gat | 337 |
| Gly Cys Leu Thr Gln Val Tyr Phe Leu Met Met Phe Ala Gly Met Asp | |
| 100 105 110 | |
| act ttc cta ctg gcc gtg atg gcc tat gac cgg ttt gtg gcc atc tgc | 385 |
| Thr Phe Leu Leu Ala Val Met Ala Tyr Asp Arg Phe Val Ala Ile Cys | |
| 115 120 125 | |
| cac cca ctg cac tac acg gtc atc atg aac ccc tgc ctc tgt ggc ctc | 433 |
| His Pro Leu His Tyr Thr Val Ile Met Asn Pro Cys Leu Cys Gly Leu | |
| 130 135 140 | |
| ctg gtt ctg gca tct tgg ttc atc att ttc tgg ttc tcc ctg gtt cat | 481 |
| Leu Val Leu Ala Ser Trp Phe Ile Ile Phe Trp Phe Ser Leu Val His | |
| 145 150 155 | |
| att cta ctg atg aag agg ttg acc ttc tcc aca ggc act gag att ccg | 529 |
| Ile Leu Leu Met Lys Arg Leu Thr Phe Ser Thr Gly Thr Glu Ile Pro | |
| 160 165 170 175 | |
| cat ttc ttc tgt gaa ccg gct cag gtc ctc aag gtg gcc tgc tct aac | 577 |
| His Phe Phe Cys Glu Pro Ala Gln Val Leu Lys Val Ala Cys Ser Asn | |
| 180 185 190 | |
| acc ctc ctc aat aac att gtc ttg tat gtg gcc acg gca ctg ctg ggt | 625 |
| Thr Leu Leu Asn Asn Ile Val Leu Tyr Val Ala Thr Ala Leu Leu Gly | |
| 195 200 205 | |

| | |
|---|-----|
| gtg ttt cct gta gct ggg atc ctc ttc tcc tac tct cag att gtc tcc | 673 |
| Val Phe Pro Val Ala Gly Ile Leu Phe Ser Tyr Ser Gln Ile Val Ser | |
| 210 215 220 | |
| tcc tta atg gga atg tcc tcc acc aag ggc aag tac aaa gcc ttt tcc | 721 |
| Ser Leu Met Gly Met Ser Ser Thr Lys Gly Lys Tyr Lys Ala Phe Ser | |
| 225 230 235 | |
| acc tgt gga tct cac ctc tgt gtg gtc tcc ttg ttc tat gga aca gga | 769 |
| Thr Cys Gly Ser His Leu Cys Val Val Ser Leu Phe Tyr Gly Thr Gly | |
| 240 245 250 255 | |
| ctt ggg gtc tat ctg agt tct gct gtg acc cat tct tcc cag agc agc | 817 |
| Leu Gly Val Tyr Leu Ser Ser Ala Val Thr His Ser Ser Gln Ser Ser | |
| 260 265 270 | |
| tcc acc gcc tca gtg atg tac gcc atg gtc acc ccc atg ctg aac ccc | 865 |
| Ser Thr Ala Ser Val Met Tyr Ala Met Val Thr Pro Met Leu Asn Pro | |
| 275 280 285 | |
| ttc atc tac agc ctg agg aac aag gat gtg aag ggg gcc ctg gaa aga | 913 |
| Phe Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Gly Ala Leu Glu Arg | |
| 290 295 300 | |
| ctc ctc agc agg gcc gac tct tgt cca tgacaaatca gggcctcaga | 960 |
| Leu Leu Ser Arg Ala Asp Ser Cys Pro | |
| 305 310 | |
| actaagagga cacactgcgt acccctaagg caaat | 995 |
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| <210> 58 | |
| <211> 312 | |
| <212> PRT | |
| <213> Homo sapiens | |
| | |
| <400> 58 | |
| Met Glu Ala Glu Asn Leu Thr Glu Leu Ser Lys Phe Leu Leu Leu Gly | |
| 1 5 10 15 | |
| Leu Ser Asp Asp Pro Glu Leu Gln Pro Val Leu Phe Gly Leu Phe Leu | |
| 20 25 30 | |
| Ser Met Tyr Leu Val Thr Val Leu Gly Asn Leu Leu Ile Ile Leu Ala | |
| 35 40 45 | |
| Val Ser Ser Asp Ser His Leu His Thr Pro Met Tyr Phe Phe Leu Ser | |
| 50 55 60 | |
| Asn Leu Ser Phe Val Asp Ile Cys Phe Ile Ser Thr Thr Val Pro Lys | |
| 65 70 75 80 | |
| Met Leu Val Ser Ile Gln Ala Arg Ser Lys Asp Ile Ser Tyr Met Gly | |
| 85 90 95 | |
| Cys Leu Thr Gln Val Tyr Phe Leu Met Met Phe Ala Gly Met Asp Thr | |
| 100 105 110 | |

Phe Leu Leu Ala Val Met Ala Tyr Asp Arg Phe Val Ala Ile Cys His
 115 120 125
 Pro Leu His Tyr Thr Val Ile Met Asn Pro Cys Leu Cys Gly Leu Leu
 130 135 140
 Val Leu Ala Ser Trp Phe Ile Ile Phe Trp Phe Ser Leu Val His Ile
 145 150 155 160
 Leu Leu Met Lys Arg Leu Thr Phe Ser Thr Gly Thr Glu Ile Pro His
 165 170 175
 Phe Phe Cys Glu Pro Ala Gln Val Leu Lys Val Ala Cys Ser Asn Thr
 180 185 190
 Leu Leu Asn Asn Ile Val Leu Tyr Val Ala Thr Ala Leu Leu Gly Val
 195 200 205
 Phe Pro Val Ala Gly Ile Leu Phe Ser Tyr Ser Gln Ile Val Ser Ser
 210 215 220
 Leu Met Gly Met Ser Ser Thr Lys Gly Lys Tyr Lys Ala Phe Ser Thr
 225 230 235 240
 Cys Gly Ser His Leu Cys Val Val Ser Leu Phe Tyr Gly Thr Gly Leu
 245 250 255
 Gly Val Tyr Leu Ser Ser Ala Val Thr His Ser Ser Gln Ser Ser Ser
 260 265 270
 Thr Ala Ser Val Met Tyr Ala Met Val Thr Pro Met Leu Asn Pro Phe
 275 280 285
 Ile Tyr Ser Leu Arg Asn Lys Asp Val Lys Gly Ala Leu Glu Arg Leu
 290 295 300
 Leu Ser Arg Ala Asp Ser Cys Pro
 305 310

<210> 59
 <211> 963
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (9)..(920)

<400> 59
 ttgatgat atg gaa aga gca aac cat tca gtg gta tcg gaa ttt att ttg 50
 Met Glu Arg Ala Asn His Ser Val Val Ser Glu Phe Ile Leu
 1 5 10

ttg gga ctt tcc aaa tct caa aat ctt cag att tta ttc ttc ttg gga 98

| 240 | 245 | 250 | |
|---|-----|-----|-----|
| gtc ttt atc tac gtc tgg ccc ttc agc aga tac tcg gta gat aaa att | | | 818 |
| Val Phe Ile Tyr Val Trp Pro Phe Ser Arg Tyr Ser Val Asp Lys Ile | | | |
| 255 | 260 | 265 | 270 |
| ctt tct gtg ttt tac aca att ttc aca cct ctc tta aat cct att att | | | 866 |
| Leu Ser Val Phe Tyr Thr Ile Phe Thr Pro Leu Leu Asn Pro Ile Ile | | | |
| | 275 | 280 | 285 |
| tat aca tta aga aat caa gag gta aaa gca gcc att aaa aaa aga ctc | | | 914 |
| Tyr Thr Leu Arg Asn Gln Glu Val Lys Ala Ala Ile Lys Lys Arg Leu | | | |
| | 290 | 295 | 300 |
| tgc ata taaatttaaa gcataactttt tagatgagac ttttgaagag aca | | | 963 |
| Cys Ile | | | |

<210> 60
 <211> 304
 <212> PRT
 <213> Homo sapiens

| | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 60 | | | | | | | | | | | | | | | |
| Met | Glu | Arg | Ala | Asn | His | Ser | Val | Val | Ser | Glu | Phe | Ile | Leu | Leu | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Ser | Lys | Ser | Gln | Asn | Leu | Gln | Ile | Leu | Phe | Phe | Leu | Gly | Phe | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Val | Phe | Val | Gly | Ile | Val | Leu | Gly | Asn | Leu | Leu | Ile | Leu | Val | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Thr | Phe | Asp | Ser | Leu | Leu | His | Thr | Pro | Met | Tyr | Phe | Leu | Leu | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asn | Leu | Ser | Cys | Ile | Asp | Met | Ile | Leu | Ala | Ser | Phe | Ala | Thr | Pro | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Met | Ile | Val | Asp | Phe | Leu | Arg | Glu | Arg | Lys | Thr | Ile | Ser | Trp | Trp | Gly |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Cys | Tyr | Ser | Gln | Met | Phe | Phe | Met | His | Leu | Leu | Gly | Gly | Ser | Glu | Met |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Met | Leu | Leu | Val | Ala | Met | Ala | Ile | Asp | Arg | Tyr | Val | Ala | Ile | Cys | Lys |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Pro | Leu | His | Tyr | Met | Thr | Ile | Met | Ser | Pro | Arg | Val | Leu | Thr | Gly | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Leu | Ser | Ser | Tyr | Ala | Val | Gly | Phe | Val | His | Ser | Ser | Ser | Gln | Met |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ala | Phe | Met | Leu | Thr | Leu | Pro | Phe | Cys | Gly | Pro | Asn | Val | Ile | Asp | Ser |
| | | | 165 | | | | | | 170 | | | | | 175 | |

Phe Phe Cys Asp Leu Pro Leu Val Ile Lys Leu Ala Cys Lys Asp Thr
 180 185 190
 Tyr Ile Leu Gln Leu Leu Val Ile Ala Asp Ser Gly Leu Leu Ser Leu
 195 200 205
 Val Cys Phe Leu Leu Leu Leu Val Ser Tyr Gly Val Ile Ile Phe Ser
 210 215 220
 Val Arg Tyr Arg Ala Ala Ser Arg Ser Ser Lys Ala Phe Ser Thr Leu
 225 230 235 240
 Ser Ala His Ile Thr Val Val Thr Leu Phe Phe Ala Pro Cys Val Phe
 245 250 255
 Ile Tyr Val Trp Pro Phe Ser Arg Tyr Ser Val Asp Lys Ile Leu Ser
 260 265 270
 Val Phe Tyr Thr Ile Phe Thr Pro Leu Leu Asn Pro Ile Ile Tyr Thr
 275 280 285
 Leu Arg Asn Gln Glu Val Lys Ala Ala Ile Lys Lys Arg Leu Cys Ile
 290 295 300

<210> 61
 <211> 970
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (9)..(920)

<400> 61
 ttgacgat atg gaa aga gca aac cat tca gtg gta tcg gaa ttt att ttg 50
 Met Glu Arg Ala Asn His Ser Val Val Ser Glu Phe Ile Leu
 1 5 10
 ttg gga ctt tcc aaa tct caa aat ctt cag att tta ttc ttc ttg gga 98
 Leu Gly Leu Ser Lys Ser Gln Asn Leu Gln Ile Leu Phe Phe Leu Gly
 15 20 25 30
 ttc tct gtg gtc ttc gtg ggg att gtg tta gga aac ctg ctc atc ttg 146
 Phe Ser Val Val Phe Val Gly Ile Val Leu Gly Asn Leu Leu Ile Leu
 35 40 45
 gtg act gtg acc ttt gat tcg ctc ctt cac aca cca atg tat ttt ctg 194
 Val Thr Val Thr Phe Asp Ser Leu Leu His Thr Pro Met Tyr Phe Leu
 50 55 60
 ctt agc aac ctc tcc tgc att gat atg atc ctg gct tct ttt gct acc 242
 Leu Ser Asn Leu Ser Cys Ile Asp Met Ile Leu Ala Ser Phe Ala Thr
 65 70 75
 cct aag atg att gta gat ttc ctc cga gaa cgt aag acc atc tca tgg 290

| | |
|---|-----|
| Pro Lys Met Ile Val Asp Phe Leu Arg Glu Arg Lys Thr Ile Ser Trp | |
| 80 85 90 | |
| tgg gga tgt tat tcc cag atg ttc ttt atg cac ctc ctg ggt ggg agt | 338 |
| Trp Gly Cys Tyr Ser Gln Met Phe Phe Met His Leu Leu Gly Gly Ser | |
| 95 100 105 110 | |
| gag atg atg ttg ctt gta gcc atg gca ata gac agg tat gtt gcc ata | 386 |
| Glu Met Met Leu Leu Val Ala Met Ala Ile Asp Arg Tyr Val Ala Ile | |
| 115 120 125 | |
| tgc aaa ccc ctc cat tac atg acc atc atg agc cca cgg gtg ctc act | 434 |
| Cys Lys Pro Leu His Tyr Met Thr Ile Met Ser Pro Arg Val Leu Thr | |
| 130 135 140 | |
| ggg cta ctg tta tcc tcc tat gca gtt gga ttt gtg cac tca tct agt | 482 |
| Gly Leu Leu Leu Ser Ser Tyr Ala Val Gly Phe Val His Ser Ser Ser | |
| 145 150 155 | |
| caa atg gct ttc atg ttg act ttg ccc ttc tgt ggt ccc aat gtt ata | 530 |
| Gln Met Ala Phe Met Leu Thr Leu Pro Phe Cys Gly Pro Asn Val Ile | |
| 160 165 170 | |
| gac agc ttt ttc tgt gac ctt ccc ctt gtg att aaa ctt gcc tgc aag | 578 |
| Asp Ser Phe Phe Cys Asp Leu Pro Leu Val Ile Lys Leu Ala Cys Lys | |
| 175 180 185 190 | |
| gac acc tac atc cta cag ctc ctg gtc att gct gac agt ggg ctc ctg | 626 |
| Asp Thr Tyr Ile Leu Gln Leu Leu Val Ile Ala Asp Ser Gly Leu Leu | |
| 195 200 205 | |
| tca ctg gtc tgc ttc ctc ctc ttg ctt gtc tcc tat gga gtc ata ata | 674 |
| Ser Leu Val Cys Phe Leu Leu Leu Leu Val Ser Tyr Gly Val Ile Ile | |
| 210 215 220 | |
| ttc tca gtt agg tac cgt gct gct agt cga tcc tct aag gct ttc tcc | 722 |
| Phe Ser Val Arg Tyr Arg Ala Ala Ser Arg Ser Ser Lys Ala Phe Ser | |
| 225 230 235 | |
| act ctc tca gct cac atc aca gtt gtg act ctg ttc ttt gct ccg tgt | 770 |
| Thr Leu Ser Ala His Ile Thr Val Val Thr Leu Phe Phe Ala Pro Cys | |
| 240 245 250 | |
| gtc ttt atc tac gtc tgg ccc ttc agc aga tac tcg gta gat aaa att | 818 |
| Val Phe Ile Tyr Val Trp Pro Phe Ser Arg Tyr Ser Val Asp Lys Ile | |
| 255 260 265 270 | |
| ctt tct gtg ttt tac aca att ttc aca cct ctc tta aat cct att att | 866 |
| Leu Ser Val Phe Tyr Thr Ile Phe Thr Pro Leu Leu Asn Pro Ile Ile | |
| 275 280 285 | |
| tat aca tta aga aat caa gag gta aaa gca gcc att aaa aaa aga ctc | 914 |
| Tyr Thr Leu Arg Asn Gln Glu Val Lys Ala Ala Ile Lys Lys Arg Leu | |
| 290 295 300 | |
| tgc ata taaatttaaa gcatactttt tagatgagac ttttgaagag acactctctt | 970 |
| Cys Ile | |

<210> 62
 <211> 304
 <212> PRT
 <213> Homo sapiens

<400> 62
 Met Glu Arg Ala Asn His Ser Val Val Ser Glu Phe Ile Leu Leu Gly
 1 5 10 15
 Leu Ser Lys Ser Gln Asn Leu Gln Ile Leu Phe Phe Leu Gly Phe Ser
 20 25 30
 Val Val Phe Val Gly Ile Val Leu Gly Asn Leu Leu Ile Leu Val Thr
 35 40 45
 Val Thr Phe Asp Ser Leu Leu His Thr Pro Met Tyr Phe Leu Leu Ser
 50 55 60
 Asn Leu Ser Cys Ile Asp Met Ile Leu Ala Ser Phe Ala Thr Pro Lys
 65 70 75 80
 Met Ile Val Asp Phe Leu Arg Glu Arg Lys Thr Ile Ser Trp Trp Gly
 85 90 95
 Cys Tyr Ser Gln Met Phe Phe Met His Leu Leu Gly Gly Ser Glu Met
 100 105 110
 Met Leu Leu Val Ala Met Ala Ile Asp Arg Tyr Val Ala Ile Cys Lys
 115 120 125
 Pro Leu His Tyr Met Thr Ile Met Ser Pro Arg Val Leu Thr Gly Leu
 130 135 140
 Leu Leu Ser Ser Tyr Ala Val Gly Phe Val His Ser Ser Ser Gln Met
 145 150 155 160
 Ala Phe Met Leu Thr Leu Pro Phe Cys Gly Pro Asn Val Ile Asp Ser
 165 170 175
 Phe Phe Cys Asp Leu Pro Leu Val Ile Lys Leu Ala Cys Lys Asp Thr
 180 185 190
 Tyr Ile Leu Gln Leu Leu Val Ile Ala Asp Ser Gly Leu Leu Ser Leu
 195 200 205
 Val Cys Phe Leu Leu Leu Leu Val Ser Tyr Gly Val Ile Ile Phe Ser
 210 215 220
 Val Arg Tyr Arg Ala Ala Ser Arg Ser Ser Lys Ala Phe Ser Thr Leu
 225 230 235 240
 Ser Ala His Ile Thr Val Val Thr Leu Phe Phe Ala Pro Cys Val Phe
 245 250 255
 Ile Tyr Val Trp Pro Phe Ser Arg Tyr Ser Val Asp Lys Ile Leu Ser

| | | |
|---|-----|-----|
| 260 | 265 | 270 |
| Val Phe Tyr Thr Ile Phe Thr Pro Leu Leu Asn Pro Ile Ile Tyr Thr | | |
| 275 | 280 | 285 |
| Leu Arg Asn Gln Glu Val Lys Ala Ala Ile Lys Lys Arg Leu Cys Ile | | |
| 290 | 295 | 300 |

<210> 63
 <211> 1003
 <212> DNA
 <213> Homo sapiens

 <220>
 <221> CDS
 <222> (17)..(988)

 <400> 63
 tcccttccaa aattca atg aat gag aca aat cat tct tgg gtg aca gaa ttt 52
 Met Asn Glu Thr Asn His Ser Trp Val Thr Glu Phe
 1 5 10

 gtg ttg ctg gga ctg tct agt tca agg gag ctc caa cct ttc ttg ttt 100
 Val Leu Leu Gly Leu Ser Ser Ser Arg Glu Leu Gln Pro Phe Leu Phe
 15 20 25

 ctt ata ttt tca cta ctt tat cta gca att ctg ttg ggc aac ttt ctc 148
 Leu Ile Phe Ser Leu Leu Tyr Leu Ala Ile Leu Leu Gly Asn Phe Leu
 30 35 40

 atc atc ctc act gtg acc tca gat tcc cgc ctt cac acc ccc atg tac 196
 Ile Ile Leu Thr Val Thr Ser Asp Ser Arg Leu His Thr Pro Met Tyr
 45 50 55 60

 ttt ctg ctt gcc aac ctg tca ttt ata gac gta tgt gtt gcc tct tct 244
 Phe Leu Leu Ala Asn Leu Ser Phe Ile Asp Val Cys Val Ala Ser Ser
 65 70 75

 gct acc cct aaa atg att gca gac ttt ctg gtt gag cac aag act att 292
 Ala Thr Pro Lys Met Ile Ala Asp Phe Leu Val Glu His Lys Thr Ile
 80 85 90

 tct ttt gat gcc cgc ctg gcc cag att ttc ttt gtt cat ctc ttc act 340
 Ser Phe Asp Ala Arg Leu Ala Gln Ile Phe Phe Val His Leu Phe Thr
 95 100 105

 ggc agt gaa atg gtg ctc cta gtt tcc atg gcc tat gac cgt tat gtt 388
 Gly Ser Glu Met Val Leu Leu Val Ser Met Ala Tyr Asp Arg Tyr Val
 110 115 120

 gct ata tgc aaa cct ccc cac tac atg aca atc atg agc tgc tgt gta 436
 Ala Ile Cys Lys Pro Pro His Tyr Met Thr Ile Met Ser Cys Cys Val
 125 130 135 140

 tgt gtt gtg ctc ttc ctc att tcc tgg ttt gtg ggc ttc atc cat acc 484

| | |
|---|------|
| Cys Val Val Leu Phe Leu Ile Ser Trp Phe Val Gly Phe Ile His Thr | |
| 145 150 155 | |
| acc agc cag ttg gca ttc act gtt aat ctg cca ttt tgt ggt cct aat | 532 |
| Thr Ser Gln Leu Ala Phe Thr Val Asn Leu Pro Phe Cys Gly Pro Asn | |
| 160 165 170 | |
| aag gta gat agt ttt ttc tgt gac ctt cct cta gtg acc aag tta gcc | 580 |
| Lys Val Asp Ser Phe Phe Cys Asp Leu Pro Leu Val Thr Lys Leu Ala | |
| 175 180 185 | |
| tgc ata gac act tat gtt gtc agc cta cta ata gtt gca gat agt ggc | 628 |
| Cys Ile Asp Thr Tyr Val Val Ser Leu Leu Ile Val Ala Asp Ser Gly | |
| 190 195 200 | |
| ttt ctt tct ctg agt tcc ttt ctc ctc ttg gtt gtc tcc tac act gta | 676 |
| Phe Leu Ser Leu Ser Ser Phe Leu Leu Leu Val Val Ser Tyr Thr Val | |
| 205 210 215 220 | |
| ata ctt gtt aca gtt agg aat agc tcc tct gta agc atg gtg aag gcc | 724 |
| Ile Leu Val Thr Val Arg Asn Ser Ser Ser Val Ser Met Val Lys Ala | |
| 225 230 235 | |
| tgc tcc aca ttg act gct cac atc act gtg gtc act tta ttc ttt gga | 772 |
| Cys Ser Thr Leu Thr Ala His Ile Thr Val Val Thr Leu Phe Phe Gly | |
| 240 245 250 | |
| ccg tgt att ttc atc tat gtg tgg ccc ttc agc agt tac tca gtt gac | 820 |
| Pro Cys Ile Phe Ile Tyr Val Trp Pro Phe Ser Ser Tyr Ser Val Asp | |
| 255 260 265 | |
| aaa gtc ctt gct gta ttc tac acc atc ttc acg tct att tta aac cct | 868 |
| Lys Val Leu Ala Val Phe Tyr Thr Ile Phe Thr Ser Ile Leu Asn Pro | |
| 270 275 280 | |
| gta atc tac atg cta aga aac aaa gaa gtg aag gca gct atg tca aaa | 916 |
| Val Ile Tyr Met Leu Arg Asn Lys Glu Val Lys Ala Ala Met Ser Lys | |
| 285 290 295 300 | |
| ctg aag agt cgg tat cag aag ctt ggt cag gtt tct gta gtc ata aga | 964 |
| Leu Lys Ser Arg Tyr Gln Lys Leu Gly Gln Val Ser Val Val Ile Arg | |
| 305 310 315 | |
| aac gtt ctt ttc cta gaa aca aag taaacttatg agact | 1003 |
| Asn Val Leu Phe Leu Glu Thr Lys | |
| 320 | |

<210> 64
 <211> 324
 <212> PRT
 <213> Homo sapiens

<400> 64
 Met Asn Glu Thr Asn His Ser Trp Val Thr Glu Phe Val Leu Leu Gly
 1 5 10 15

Leu Ser Ser Ser Arg Glu Leu Gln Pro Phe Leu Phe Leu Ile Phe Ser
 20 25 30
 Leu Leu Tyr Leu Ala Ile Leu Leu Gly Asn Phe Leu Ile Ile Leu Thr
 35 40 45
 Val Thr Ser Asp Ser Arg Leu His Thr Pro Met Tyr Phe Leu Leu Ala
 50 55 60
 Asn Leu Ser Phe Ile Asp Val Cys Val Ala Ser Ser Ala Thr Pro Lys
 65 70 75 80
 Met Ile Ala Asp Phe Leu Val Glu His Lys Thr Ile Ser Phe Asp Ala
 85 90 95
 Arg Leu Ala Gln Ile Phe Phe Val His Leu Phe Thr Gly Ser Glu Met
 100 105 110
 Val Leu Leu Val Ser Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Lys
 115 120 125
 Pro Pro His Tyr Met Thr Ile Met Ser Cys Cys Val Cys Val Val Leu
 130 135 140
 Phe Leu Ile Ser Trp Phe Val Gly Phe Ile His Thr Thr Ser Gln Leu
 145 150 155 160
 Ala Phe Thr Val Asn Leu Pro Phe Cys Gly Pro Asn Lys Val Asp Ser
 165 170 175
 Phe Phe Cys Asp Leu Pro Leu Val Thr Lys Leu Ala Cys Ile Asp Thr
 180 185 190
 Tyr Val Val Ser Leu Leu Ile Val Ala Asp Ser Gly Phe Leu Ser Leu
 195 200 205
 Ser Ser Phe Leu Leu Leu Val Val Ser Tyr Thr Val Ile Leu Val Thr
 210 215 220
 Val Arg Asn Ser Ser Ser Val Ser Met Val Lys Ala Cys Ser Thr Leu
 225 230 235 240
 Thr Ala His Ile Thr Val Val Thr Leu Phe Phe Gly Pro Cys Ile Phe
 245 250 255
 Ile Tyr Val Trp Pro Phe Ser Ser Tyr Ser Val Asp Lys Val Leu Ala
 260 265 270
 Val Phe Tyr Thr Ile Phe Thr Ser Ile Leu Asn Pro Val Ile Tyr Met
 275 280 285
 Leu Arg Asn Lys Glu Val Lys Ala Ala Met Ser Lys Leu Lys Ser Arg
 290 295 300
 Tyr Gln Lys Leu Gly Gln Val Ser Val Val Ile Arg Asn Val Leu Phe
 305 310 315 320

Leu Glu Thr Lys

<210> 65
 <211> 972
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (13) .. (948)

<400> 65
 ttggctggac ca atg gat gga gag aat cac tca gtg gta tct gag ttt ttg 51
 Met Asp Gly Glu Asn His Ser Val Val Ser Glu Phe Leu
 1 5 10

ttt ctg gga ctc act cat tca tgg gag atc cag ctc ctc ctc cta gtg 99
 Phe Leu Gly Leu Thr His Ser Trp Glu Ile Gln Leu Leu Leu Leu Val
 15 20 25

ttt tcc tct gtg ctc tat gtg gca agc att act gga aac atc ctc att 147
 Phe Ser Ser Val Leu Tyr Val Ala Ser Ile Thr Gly Asn Ile Leu Ile
 30 35 40 45

gtg ttt tct gtg acc act gac cct cac tta cac tcc ccc atg tac ttt 195
 Val Phe Ser Val Thr Thr Asp Pro His Leu His Ser Ser Pro Met Tyr Phe
 50 55 60

cta ctg gcc agt ctc tcc ttc att gac tta gga gcc tgc tct gtc act 243
 Leu Leu Ala Ser Leu Ser Phe Ile Asp Leu Gly Ala Cys Ser Val Thr
 65 70 75

tct ccc aag atg att tat gac ctg ttc aga aag cgc aaa gtc atc tcc 291
 Ser Pro Lys Met Ile Tyr Asp Leu Phe Arg Lys Arg Lys Val Ile Ser
 80 85 90

ttt gga ggc tgc atc gct caa atc ttc ttc atc cac gtc att ggt ggt 339
 Phe Gly Gly Cys Ile Ala Gln Ile Phe Phe Ile His Val Ile Gly Gly
 95 100 105

gtg gag atg gtg ctg ctc ata gcc atg gcc ttt gac aga tat gtg gcc 387
 Val Glu Met Val Leu Leu Ile Ala Met Ala Phe Asp Arg Tyr Val Ala
 110 115 120 125

cta tgt aag ccc ctc cac tat ctg acc att atg agc cca aga atg tgc 435
 Leu Cys Lys Pro Leu His Tyr Leu Thr Ile Met Ser Pro Arg Met Cys
 130 135 140

ctt tca ttt ctg gct gtt gcc tgg acc ctt ggt gtc agt cac tcc ctg 483
 Leu Ser Phe Leu Ala Val Ala Trp Thr Leu Gly Val Ser His Ser Leu
 145 150 155

ttc caa ctg gca ttt ctt gtt aat tta gcc ttc tgt ggc cct aat gtg 531
 Phe Gln Leu Ala Phe Leu Val Asn Leu Ala Phe Cys Gly Pro Asn Val

| 160 | 165 | 170 | |
|--|-----|-----|-----|
| ttg gac agc ttc tac tgt gac ctt cct cgg ctt ctc aga cta gcc tgt | | | 579 |
| Leu Asp Ser Phe Tyr Cys Asp Leu Pro Arg Leu Leu Arg Leu Ala Cys | | | |
| 175 | 180 | 185 | |
| acc gac acc tac aga ttg cag ttc atg gtc act gtt aac agt ggg ttt | | | 627 |
| Thr Asp Thr Tyr Arg Leu Gln Phe Met Val Thr Val Asn Ser Gly Phe | | | |
| 190 | 195 | 200 | 205 |
| atc tgt gtg ggt act ttc ttc ata ctt cta atc tcc tac gtc ttc atc | | | 675 |
| Ile Cys Val Gly Thr Phe Phe Ile Leu Leu Ile Ser Tyr Val Phe Ile | | | |
| | 210 | 215 | 220 |
| ctg ttt act gtt tgg aaa cat tcc tca ggt ggt tca tcc aag gcc ctt | | | 723 |
| Leu Phe Thr Val Trp Lys His Ser Ser Gly Gly Ser Ser Lys Ala Leu | | | |
| | 225 | 230 | 235 |
| tcc act ctt tca gct cac agc aca gtg gtc ctt ttg ttc ttt ggt cca | | | 771 |
| Ser Thr Leu Ser Ala His Ser Thr Val Val Leu Leu Phe Phe Gly Pro | | | |
| | 240 | 245 | 250 |
| ccc atg ttt gtg tat aca cgg cca cac cct aat tca cag atg gac aag | | | 819 |
| Pro Met Phe Val Tyr Thr Arg Pro His Pro Asn Ser Gln Met Asp Lys | | | |
| | 255 | 260 | 265 |
| ttt ctg gct att ttt gat gca gtt ctc act cct ttt ctg aat cca gtt | | | 867 |
| Phe Leu Ala Ile Phe Asp Ala Val Leu Thr Pro Phe Leu Asn Pro Val | | | |
| | 270 | 275 | 280 |
| gtc tat aca ttc agg aat aag gag atg aag gca gca ata aag aga gta | | | 915 |
| Val Tyr Thr Phe Arg Asn Lys Glu Met Lys Ala Ala Ile Lys Arg Val | | | |
| | 290 | 295 | 300 |
| tgc aaa cag cta gtg att tac aag agg atc tca taaatgatataataagccct | | | 968 |
| Cys Lys Gln Leu Val Ile Tyr Lys Arg Ile Ser | | | |
| | 305 | 310 | |
| tctc | | | 972 |

<210> 66
 <211> 312
 <212> PRT
 <213> Homo sapiens

<400> 66
 Met Asp Gly Glu Asn His Ser Val Val Ser Glu Phe Leu Phe Leu Gly
 1 5 10 15
 Leu Thr His Ser Trp Glu Ile Gln Leu Leu Leu Leu Val Phe Ser Ser
 20 25 30
 Val Leu Tyr Val Ala Ser Ile Thr Gly Asn Ile Leu Ile Val Phe Ser
 35 40 45
 Val Thr Thr Asp Pro His Leu His Ser Pro Met Tyr Phe Leu Leu Ala

| 50 | 55 | 60 |
|---|-----|-------------|
| Ser Leu Ser Phe Ile Asp Leu Gly Ala Cys Ser Val Thr Ser Pro Lys | | |
| 65 | 70 | 75 80 |
| Met Ile Tyr Asp Leu Phe Arg Lys Arg Lys Val Ile Ser Phe Gly Gly | | |
| | 85 | 90 95 |
| Cys Ile Ala Gln Ile Phe Phe Ile His Val Ile Gly Gly Val Glu Met | | |
| | 100 | 105 110 |
| Val Leu Leu Ile Ala Met Ala Phe Asp Arg Tyr Val Ala Leu Cys Lys | | |
| | 115 | 120 125 |
| Pro Leu His Tyr Leu Thr Ile Met Ser Pro Arg Met Cys Leu Ser Phe | | |
| | 130 | 135 140 |
| Leu Ala Val Ala Trp Thr Leu Gly Val Ser His Ser Leu Phe Gln Leu | | |
| | 145 | 150 155 160 |
| Ala Phe Leu Val Asn Leu Ala Phe Cys Gly Pro Asn Val Leu Asp Ser | | |
| | 165 | 170 175 |
| Phe Tyr Cys Asp Leu Pro Arg Leu Leu Arg Leu Ala Cys Thr Asp Thr | | |
| | 180 | 185 190 |
| Tyr Arg Leu Gln Phe Met Val Thr Val Asn Ser Gly Phe Ile Cys Val | | |
| | 195 | 200 205 |
| Gly Thr Phe Phe Ile Leu Leu Ile Ser Tyr Val Phe Ile Leu Phe Thr | | |
| | 210 | 215 220 |
| Val Trp Lys His Ser Ser Gly Gly Ser Ser Lys Ala Leu Ser Thr Leu | | |
| | 225 | 230 235 240 |
| Ser Ala His Ser Thr Val Val Leu Leu Phe Phe Gly Pro Pro Met Phe | | |
| | 245 | 250 255 |
| Val Tyr Thr Arg Pro His Pro Asn Ser Gln Met Asp Lys Phe Leu Ala | | |
| | 260 | 265 270 |
| Ile Phe Asp Ala Val Leu Thr Pro Phe Leu Asn Pro Val Val Tyr Thr | | |
| | 275 | 280 285 |
| Phe Arg Asn Lys Glu Met Lys Ala Ala Ile Lys Arg Val Cys Lys Gln | | |
| | 290 | 295 300 |
| Leu Val Ile Tyr Lys Arg Ile Ser | | |
| 305 | 310 | |

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  Pro Met Glu Pro Gln Asn Thr Thr Gln Val Ser Met Phe Val Leu
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tta ggg ttt tca cag acc caa gag ctc cag aaa ttc ctg ttc ctt ctg      95
Leu Gly Phe Ser Gln Thr Gln Glu Leu Gln Lys Phe Leu Phe Leu Leu
                20             25             30

ttc ctg tta gtc tat gtt acc acc att gtg gga aac ctc ctt atc atg      143
Phe Leu Leu Val Tyr Val Thr Thr Ile Val Gly Asn Leu Leu Ile Met
                35             40             45

gtc aca gtg act ttt gac tgc cgg ctc cac aca ccc atg tat ttt ctg      191
Val Thr Val Thr Phe Asp Cys Arg Leu His Thr Pro Met Tyr Phe Leu
                50             55             60

ctc cga aat cta gct ctc ata gac ctc tgc tat tcc aca gtc acc tct      239
Leu Arg Asn Leu Ala Leu Ile Asp Leu Cys Tyr Ser Thr Val Thr Ser
                65             70             75

cca aag atg ctg gtg gac ttc ctc cat gag acc aag acg atc tcc tac      287
Pro Lys Met Leu Val Asp Phe Leu His Glu Thr Lys Thr Ile Ser Tyr
                80             85             90             95

cag ggc tgc atg gcc cag atc ttc ttc ttc cac ctt ttg gga ggt ggg      335
Gln Gly Cys Met Ala Gln Ile Phe Phe Phe His Leu Leu Gly Gly Gly
                100             105             110

act gtc ttt ttt ctc tca gtc atg gcc tat gac cgc tac ata gcc atc      383
Thr Val Phe Phe Leu Ser Val Met Ala Tyr Asp Arg Tyr Ile Ala Ile
                115             120             125

tcc cag ccc ctc cgg tat gtc acc atc atg aac act caa ttg tgt gtg      431
Ser Gln Pro Leu Arg Tyr Val Thr Ile Met Asn Thr Gln Leu Cys Val
                130             135             140

ggc ctg gta gta gcc gcc tgg gtg ggg ggc ttt gtc cac tcc att gtc      479
Gly Leu Val Val Ala Ala Trp Val Gly Gly Phe Val His Ser Ile Val
                145             150             155

caa ctg gct ctg ata ctt cca ctg ccc ttc tgt ggc ccc aat atc cta      527
Gln Leu Ala Leu Ile Leu Pro Leu Pro Phe Cys Gly Pro Asn Ile Leu
                160             165             170             175

gat aac ttc tac tgt gat gtt ccc caa gta ctg aga ctt gcc tgc act      575
Asp Asn Phe Tyr Cys Asp Val Pro Gln Val Leu Arg Leu Ala Cys Thr
                180             185             190

gat acc tcc ctc ctg gag ttc ctc atg atc tcc aac agt ggg ctg cta      623
Asp Thr Ser Leu Leu Glu Phe Leu Met Ile Ser Asn Ser Gly Leu Leu
                195             200             205

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| | |
|---|-----|
| gtt atc atc tgg ttc ctc ctc ctt ctg atc tct tat act gtc atc ctg | 671 |
| Val Ile Ile Trp Phe Leu Leu Leu Leu Ile Ser Tyr Thr Val Ile Leu | |
| 210 215 220 | |
| | |
| gtg atg ctg agg tcc cac tcg gga aag gca agg agg aag gca gct tcc | 719 |
| Val Met Leu Arg Ser His Ser Gly Lys Ala Arg Arg Lys Ala Ala Ser | |
| 225 230 235 | |
| | |
| acc tgc acc acc cac atc atc gtg gtg tcc atg atc ttc att ccc tgt | 767 |
| Thr Cys Thr Thr His Ile Ile Val Val Ser Met Ile Phe Ile Pro Cys | |
| 240 245 250 255 | |
| | |
| atc tat atc tat acc tgg ccc ttc acc cca ttc ctc atg gac aag gct | 815 |
| Ile Tyr Ile Tyr Thr Trp Pro Phe Thr Pro Phe Leu Met Asp Lys Ala | |
| 260 265 270 | |
| | |
| gtg tcc atc agc tac aca gtc atg acc ccc atg ctc aac ccc atg atc | 863 |
| Val Ser Ile Ser Tyr Thr Val Met Thr Pro Met Leu Asn Pro Met Ile | |
| 275 280 285 | |
| | |
| tac acc ctg aga aac cag gac atg aaa gca gcc atg agg aga tta ggc | 911 |
| Tyr Thr Leu Arg Asn Gln Asp Met Lys Ala Ala Met Arg Arg Leu Gly | |
| 290 295 300 | |
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| aag tgc cta gta att tgc agg gag taaactttaa | 945 |
| Lys Cys Leu Val Ile Cys Arg Glu | |
| 305 310 | |

<210> 68
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 <212> PRT
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| Gly Phe Ser Gln Thr Gln Glu Leu Gln Lys Phe Leu Phe Leu Leu Phe | |
| 20 25 30 | |
| | |
| Leu Leu Val Tyr Val Thr Thr Ile Val Gly Asn Leu Leu Ile Met Val | |
| 35 40 45 | |
| | |
| Thr Val Thr Phe Asp Cys Arg Leu His Thr Pro Met Tyr Phe Leu Leu | |
| 50 55 60 | |
| | |
| Arg Asn Leu Ala Leu Ile Asp Leu Cys Tyr Ser Thr Val Thr Ser Pro | |
| 65 70 75 80 | |
| | |
| Lys Met Leu Val Asp Phe Leu His Glu Thr Lys Thr Ile Ser Tyr Gln | |
| 85 90 95 | |
| | |
| Gly Cys Met Ala Gln Ile Phe Phe Phe His Leu Leu Gly Gly Gly Thr | |
| 100 105 110 | |
| | |
| Val Phe Phe Leu Ser Val Met Ala Tyr Asp Arg Tyr Ile Ala Ile Ser | |

| 115 | | | | | 120 | | | | | 125 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Pro | Leu | Arg | Tyr | Val | Thr | Ile | Met | Asn | Thr | Gln | Leu | Cys | Val | Gly |
| 130 | | | | | 135 | | | | | 140 | | | | | |
| Leu | Val | Val | Ala | Ala | Trp | Val | Gly | Gly | Phe | Val | His | Ser | Ile | Val | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Ala | Leu | Ile | Leu | Pro | Leu | Pro | Phe | Cys | Gly | Pro | Asn | Ile | Leu | Asp |
| 165 | | | | | 170 | | | | | 175 | | | | | |
| Asn | Phe | Tyr | Cys | Asp | Val | Pro | Gln | Val | Leu | Arg | Leu | Ala | Cys | Thr | Asp |
| 180 | | | | | 185 | | | | | 190 | | | | | |
| Thr | Ser | Leu | Leu | Glu | Phe | Leu | Met | Ile | Ser | Asn | Ser | Gly | Leu | Leu | Val |
| 195 | | | | | 200 | | | | | 205 | | | | | |
| Ile | Ile | Trp | Phe | Leu | Leu | Leu | Leu | Ile | Ser | Tyr | Thr | Val | Ile | Leu | Val |
| 210 | | | | | 215 | | | | | 220 | | | | | |
| Met | Leu | Arg | Ser | His | Ser | Gly | Lys | Ala | Arg | Arg | Lys | Ala | Ala | Ser | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Cys | Thr | Thr | His | Ile | Ile | Val | Val | Ser | Met | Ile | Phe | Ile | Pro | Cys | Ile |
| 245 | | | | | 250 | | | | | 255 | | | | | |
| Tyr | Ile | Tyr | Thr | Trp | Pro | Phe | Thr | Pro | Phe | Leu | Met | Asp | Lys | Ala | Val |
| 260 | | | | | 265 | | | | | 270 | | | | | |
| Ser | Ile | Ser | Tyr | Thr | Val | Met | Thr | Pro | Met | Leu | Asn | Pro | Met | Ile | Tyr |
| 275 | | | | | 280 | | | | | 285 | | | | | |
| Thr | Leu | Arg | Asn | Gln | Asp | Met | Lys | Ala | Ala | Met | Arg | Arg | Leu | Gly | Lys |
| 290 | | | | | 295 | | | | | 300 | | | | | |
| Cys | Leu | Val | Ile | Cys | Arg | Glu | | | | | | | | | |
| 305 | | | | | 310 | | | | | | | | | | |

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (1)..(933)

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| <400> 69 | | | | | | | | | | | | | | | | |
| tgg | gaa | aac | cat | act | aca | ctg | cct | gaa | ttc | ctc | ctt | ctg | gga | ttc | tct | 48 |
| Trp | Glu | Asn | His | Thr | Thr | Leu | Pro | Glu | Phe | Leu | Leu | Leu | Gly | Phe | Ser | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | | |
| gac ctt aag gcc ctg cag gac ccc ctg ttc tgg gtg gtg ctt ctg gtc | | | | | | | | | | | | | | | 96 | |
| Asp | Leu | Lys | Ala | Leu | Gln | Asp | Pro | Leu | Phe | Trp | Val | Val | Leu | Leu | Val | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |

| | |
|---|-----|
| tac ctg gtc acc ttg ctg ggt aac tcc ctg atc atc ctc ctc aca cag | 144 |
| Tyr Leu Val Thr Leu Leu Gly Asn Ser Leu Ile Ile Leu Leu Thr Gln | |
| 35 40 45 | |
| gtc agc cct gcc ctg cac tcc ccc atg tac ttc ttc ctg cgc caa ctc | 192 |
| Val Ser Pro Ala Leu His Ser Pro Met Tyr Phe Phe Leu Arg Gln Leu | |
| 50 55 60 | |
| tca gtg gtg gag ctc ttc tac acc act gac atc gtg ccc agg acc ctg | 240 |
| Ser Val Val Glu Leu Phe Tyr Thr Thr Asp Ile Val Pro Arg Thr Leu | |
| 65 70 75 80 | |
| gcc aat ctg ggc tcc ccg cat ccc cag gcc atc tct ttc cag ggc tgt | 288 |
| Ala Asn Leu Gly Ser Pro His Pro Gln Ala Ile Ser Phe Gln Gly Cys | |
| 85 90 95 | |
| gca gcc cag atg tac gtc ttc att gtc ctg ggc atc tcg gag tgc tgc | 336 |
| Ala Ala Gln Met Tyr Val Phe Ile Val Leu Gly Ile Ser Glu Cys Cys | |
| 100 105 110 | |
| ctg ctc acg gcc atg gcc tat gac cga tat gtt gcc atc tgc cag ccc | 384 |
| Leu Leu Thr Ala Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Gln Pro | |
| 115 120 125 | |
| cta cgc tat tcc acc ctc ttg agc cca cgg gcc tgc atg gcc atg gtg | 432 |
| Leu Arg Tyr Ser Thr Leu Leu Ser Pro Arg Ala Cys Met Ala Met Val | |
| 130 135 140 | |
| ggt acc tcc tgg ctc aca ggc atc atc acg gcc acc acc cat gcc tcc | 480 |
| Gly Thr Ser Trp Leu Thr Gly Ile Ile Thr Ala Thr Thr His Ala Ser | |
| 145 150 155 160 | |
| ctc atc ttc tct cta cct ttt cgc agc cac ccg atc atc ccg cac ttt | 528 |
| Leu Ile Phe Ser Leu Pro Phe Arg Ser His Pro Ile Ile Pro His Phe | |
| 165 170 175 | |
| ctc tgt gac atc ctg cca gta ctg agg ctg gca agt gct ggg aag cac | 576 |
| Leu Cys Asp Ile Leu Pro Val Leu Arg Leu Ala Ser Ala Gly Lys His | |
| 180 185 190 | |
| agg agc gag atc tcc gtg atg aca gcc acc ata gtc ttc att atg atc | 624 |
| Arg Ser Glu Ile Ser Val Met Thr Ala Thr Ile Val Phe Ile Met Ile | |
| 195 200 205 | |
| ccc ttc tct ctg att gtc acc tct cac atc cgc atc ctg ggt gcc atc | 672 |
| Pro Phe Ser Leu Ile Val Thr Ser His Ile Arg Ile Leu Gly Ala Ile | |
| 210 215 220 | |
| cta gca atg gcc tcc acc cag agc cgc cgc aag gtc ttc tcc acc tgc | 720 |
| Leu Ala Met Ala Ser Thr Gln Ser Arg Arg Lys Val Phe Ser Thr Cys | |
| 225 230 235 240 | |
| tcc tcc cat ctg ctc gtg gtc tct ctc ttc ttt gga gca gcc agc atc | 768 |
| Ser Ser His Leu Leu Val Val Ser Leu Phe Phe Gly Ala Ala Ser Ile | |
| 245 250 255 | |

acc tac atc cgg ccg cag gca ggc tcc tct gtt acc aca gac cgc gtc 816
 Thr Tyr Ile Arg Pro Gln Ala Gly Ser Ser Val Thr Thr Asp Arg Val
 260 265 270

ctc agt ctc ttc tac aca gtc atc aca ccc atg ctc aac ccc atc atc 864
 Leu Ser Leu Phe Tyr Thr Val Ile Thr Pro Met Leu Asn Pro Ile Ile
 275 280 285

tac acc ctt cgg aac aag gac gtg agg agg gcc ctg cga cac ttg gtg 912
 Tyr Thr Leu Arg Asn Lys Asp Val Arg Arg Ala Leu Arg His Leu Val
 290 295 300

aag agg cag cgc ccc tca ccc tgaagggact cggat 948
 Lys Arg Gln Arg Pro Ser Pro
 305 310

<210> 70
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 <212> PRT
 <213> Homo sapiens

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Asp Leu Lys Ala Leu Gln Asp Pro Leu Phe Trp Val Val Leu Leu Val
 20 25 30

Tyr Leu Val Thr Leu Leu Gly Asn Ser Leu Ile Ile Leu Leu Thr Gln
 35 40 45

Val Ser Pro Ala Leu His Ser Pro Met Tyr Phe Phe Leu Arg Gln Leu
 50 55 60

Ser Val Val Glu Leu Phe Tyr Thr Thr Asp Ile Val Pro Arg Thr Leu
 65 70 75 80

Ala Asn Leu Gly Ser Pro His Pro Gln Ala Ile Ser Phe Gln Gly Cys
 85 90 95

Ala Ala Gln Met Tyr Val Phe Ile Val Leu Gly Ile Ser Glu Cys Cys
 100 105 110

Leu Leu Thr Ala Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys Gln Pro
 115 120 125

Leu Arg Tyr Ser Thr Leu Leu Ser Pro Arg Ala Cys Met Ala Met Val
 130 135 140

Gly Thr Ser Trp Leu Thr Gly Ile Ile Thr Ala Thr Thr His Ala Ser
 145 150 155 160

Leu Ile Phe Ser Leu Pro Phe Arg Ser His Pro Ile Ile Pro His Phe
 165 170 175

Leu Cys Asp Ile Leu Pro Val Leu Arg Leu Ala Ser Ala Gly Lys His

| 180 | | | | | | | 185 | | | | | 190 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Ser | Glu | Ile | Ser | Val | Met | Thr | Ala | Thr | Ile | Val | Phe | Ile | Met | Ile | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Pro | Phe | Ser | Leu | Ile | Val | Thr | Ser | His | Ile | Arg | Ile | Leu | Gly | Ala | Ile | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Leu | Ala | Met | Ala | Ser | Thr | Gln | Ser | Arg | Arg | Lys | Val | Phe | Ser | Thr | Cys | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Ser | Ser | His | Leu | Leu | Val | Val | Ser | Leu | Phe | Phe | Gly | Ala | Ala | Ser | Ile | |
| | | | 245 | | | | | | 250 | | | | | 255 | | |
| Thr | Tyr | Ile | Arg | Pro | Gln | Ala | Gly | Ser | Ser | Val | Thr | Thr | Asp | Arg | Val | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Leu | Ser | Leu | Phe | Tyr | Thr | Val | Ile | Thr | Pro | Met | Leu | Asn | Pro | Ile | Ile | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| Tyr | Thr | Leu | Arg | Asn | Lys | Asp | Val | Arg | Arg | Ala | Leu | Arg | His | Leu | Val | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Lys | Arg | Gln | Arg | Pro | Ser | Pro | | | | | | | | | | |
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 <213> Homo sapiens

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| ggc | ttt | ggg | act | aac | atc | tca | agt | act | acc | agc | ttc | act | cta | aca | ggc | 48 |
| Gly | Phe | Gly | Thr | Asn | Ile | Ser | Ser | Thr | Thr | Ser | Phe | Thr | Leu | Thr | Gly | |
| 1 | | | | 5 | | | | | 10 | | | | 15 | | | |
| ttc cct gag atg aag ggt ctg gag cac tgg ctg gct gcc ctt ctg ctg | | | | | | | | | | | | | | | 96 | |
| Phe | Pro | Glu | Met | Lys | Gly | Leu | Glu | His | Trp | Leu | Ala | Ala | Leu | Leu | Leu | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| ctg ctt tat gct att tcc ttc ctg ggc aac atc ctc atc ctc ttt atc | | | | | | | | | | | | | | | 144 | |
| Leu | Leu | Tyr | Ala | Ile | Ser | Phe | Leu | Gly | Asn | Ile | Leu | Ile | Leu | Phe | Ile | |
| | | 35 | | | | 40 | | | | | 45 | | | | | |
| ata aag gaa gag cag agc ttg cac cag cca atg tac tac ttc ctg tct | | | | | | | | | | | | | | | 192 | |
| Ile | Lys | Glu | Glu | Gln | Ser | Leu | His | Gln | Pro | Met | Tyr | Tyr | Phe | Leu | Ser | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| ctt ttt tct gtt aat gac ctg ggt gtg tcc ttt tct aca ttg ccc act | | | | | | | | | | | | | | | 240 | |
| Leu | Phe | Ser | Val | Asn | Asp | Leu | Gly | Val | Ser | Phe | Ser | Thr | Leu | Pro | Thr | |
| 65 | | | | 70 | | | | 75 | | | | | | | 80 | |

| | |
|---|-----|
| gta ctg gct gct gtg tgt ttt cat gcc cca gag aca act ttt gat gcc | 288 |
| Val Leu Ala Ala Val Cys Phe His Ala Pro Glu Thr Thr Phe Asp Ala | |
| 85 90 95 | |
| tgc ctg gcc cag atg ttc ttc atc cac ttt tcc tcc tgg aca gag ttt | 336 |
| Cys Leu Ala Gln Met Phe Phe Ile His Phe Ser Ser Trp Thr Glu Phe | |
| 100 105 110 | |
| ggc atc cta ctg gcc atg agt ttt gac cac tat gtg gcc atc tgt aac | 384 |
| Gly Ile Leu Leu Ala Met Ser Phe Asp His Tyr Val Ala Ile Cys Asn | |
| 115 120 125 | |
| ccg ctg cgc tat gcc aca gtg ctc act gat gtc cgt gtg gcc cac aat | 432 |
| Pro Leu Arg Tyr Ala Thr Val Leu Thr Asp Val Arg Val Ala His Asn | |
| 130 135 140 | |
| ggc ata tcc att gtc atc cgc agc ttc tgc atg gta ttc cca ctt ccc | 480 |
| Gly Ile Ser Ile Val Ile Arg Ser Phe Cys Met Val Phe Pro Leu Pro | |
| 145 150 155 160 | |
| ttc ctc ctg aag aga ctg tct ttc tgt aag gcc agt gtg gta ctg gcc | 528 |
| Phe Leu Leu Lys Arg Leu Ser Phe Cys Lys Ala Ser Val Val Leu Ala | |
| 165 170 175 | |
| cat tcc tac tgt ctg cat gca gac ctg att cgg ctg ccc tgg gga gac | 576 |
| His Ser Tyr Cys Leu His Ala Asp Leu Ile Arg Leu Pro Trp Gly Asp | |
| 180 185 190 | |
| act acc atc aac agc atg tat ggc ctg ttc att gtc atc tct gcc ttt | 624 |
| Thr Thr Ile Asn Ser Met Tyr Gly Leu Phe Ile Val Ile Ser Ala Phe | |
| 195 200 205 | |
| ggc gta gat tca ctg ctc atc ctc ctc tcc tat gtg ctc att ctg cgt | 672 |
| Gly Val Asp Ser Leu Leu Ile Leu Leu Ser Tyr Val Leu Ile Leu Arg | |
| 210 215 220 | |
| tct gtg ctg gcc att gcc tcc agg ggt gag agg ctt aag aca ctc aac | 720 |
| Ser Val Leu Ala Ile Ala Ser Arg Gly Glu Arg Leu Lys Thr Leu Asn | |
| 225 230 235 240 | |
| aca tgt gtg tca cat atc tat gca gtg ctg atc ttc tat gtg cct atg | 768 |
| Thr Cys Val Ser His Ile Tyr Ala Val Leu Ile Phe Tyr Val Pro Met | |
| 245 250 255 | |
| gtt ggt gtg tcc atg gtt cat cga ttt ggg agg cat gct cct gaa tat | 816 |
| Val Gly Val Ser Met Val His Arg Phe Gly Arg His Ala Pro Glu Tyr | |
| 260 265 270 | |
| gtg cac aag ttc atg tct ctt tgt acc tcc aat gct cta ccc aat tat | 864 |
| Val His Lys Phe Met Ser Leu Cys Thr Ser Asn Ala Leu Pro Asn Tyr | |
| 275 280 285 | |
| cta ttc cat caa g | 877 |
| Leu Phe His Gln | |
| 290 | |

<210> 72
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 <212> PRT
 <213> Homo sapiens

<400> 72

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 Phe Pro Glu Met Lys Gly Leu Glu His Trp Leu Ala Ala Leu Leu Leu
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 Leu Leu Tyr Ala Ile Ser Phe Leu Gly Asn Ile Leu Ile Leu Phe Ile
 35 40 45
 Ile Lys Glu Glu Gln Ser Leu His Gln Pro Met Tyr Tyr Phe Leu Ser
 50 55 60
 Leu Phe Ser Val Asn Asp Leu Gly Val Ser Phe Ser Thr Leu Pro Thr
 65 70 75 80
 Val Leu Ala Ala Val Cys Phe His Ala Pro Glu Thr Thr Phe Asp Ala
 85 90 95
 Cys Leu Ala Gln Met Phe Phe Ile His Phe Ser Ser Trp Thr Glu Phe
 100 105 110
 Gly Ile Leu Leu Ala Met Ser Phe Asp His Tyr Val Ala Ile Cys Asn
 115 120 125
 Pro Leu Arg Tyr Ala Thr Val Leu Thr Asp Val Arg Val Ala His Asn
 130 135 140
 Gly Ile Ser Ile Val Ile Arg Ser Phe Cys Met Val Phe Pro Leu Pro
 145 150 155 160
 Phe Leu Leu Lys Arg Leu Ser Phe Cys Lys Ala Ser Val Val Leu Ala
 165 170 175
 His Ser Tyr Cys Leu His Ala Asp Leu Ile Arg Leu Pro Trp Gly Asp
 180 185 190
 Thr Thr Ile Asn Ser Met Tyr Gly Leu Phe Ile Val Ile Ser Ala Phe
 195 200 205
 Gly Val Asp Ser Leu Leu Ile Leu Leu Ser Tyr Val Leu Ile Leu Arg
 210 215 220
 Ser Val Leu Ala Ile Ala Ser Arg Gly Glu Arg Leu Lys Thr Leu Asn
 225 230 235 240
 Thr Cys Val Ser His Ile Tyr Ala Val Leu Ile Phe Tyr Val Pro Met
 245 250 255
 Val Gly Val Ser Met Val His Arg Phe Gly Arg His Ala Pro Glu Tyr
 260 265 270

Val His Lys Phe Met Ser Leu Cys Thr Ser Asn Ala Leu Pro Asn Tyr
 275 280 285

Leu Phe His Gln
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<210> 73
 <211> 939
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (4) .. (936)

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 ctg gga ttc tca gat ttt ccc agg atc ata aaa gtg ctc ttc act ata 96
 Leu Gly Phe Ser Asp Phe Pro Arg Ile Ile Lys Val Leu Phe Thr Ile
 20 25 30
 ttc ctg gtg atc tac att aca tct ctg gcc tgg aac ctc tcc ctc att 144
 Phe Leu Val Ile Tyr Ile Thr Ser Leu Ala Trp Asn Leu Ser Leu Ile
 35 40 45
 gtt tta ata agg atg gat tcc cac ctc cat aca ccc atg tat ttc ttc 192
 Val Leu Ile Arg Met Asp Ser His Leu His Thr Pro Met Tyr Phe Phe
 50 55 60
 ctc agt aac ctg tcc ttc ata gat gtc tgc tat atc agc tcc aca gtc 240
 Leu Ser Asn Leu Ser Phe Ile Asp Val Cys Tyr Ile Ser Ser Thr Val
 65 70 75
 ccc aag atg ctc tcc aac ctc tta cag gaa cag caa act atc act ttt 288
 Pro Lys Met Leu Ser Asn Leu Leu Gln Glu Gln Gln Thr Ile Thr Phe
 80 85 90 95
 gtt ggt tgt att att cag tac ttt atc ttt tca acg atg gga ctg agt 336
 Val Gly Cys Ile Ile Gln Tyr Phe Ile Phe Ser Thr Met Gly Leu Ser
 100 105 110
 gag tct tgt ctc atg aca gcc atg gct tat gat cgt tat gct gcc att 384
 Glu Ser Cys Leu Met Thr Ala Met Ala Tyr Asp Arg Tyr Ala Ala Ile
 115 120 125
 tgt aac ccc ctg ctc tat tca tcc atc atg tca ccc acc ctc tgt gtt 432
 Cys Asn Pro Leu Leu Tyr Ser Ser Ile Met Ser Pro Thr Leu Cys Val
 130 135 140
 tgg atg gta ctg gga gcc tac atg act ggc ctc act gct tct tta ttc 480
 Trp Met Val Leu Gly Ala Tyr Met Thr Gly Leu Thr Ala Ser Leu Phe

| 145 | 150 | 155 | |
|-------------------------------------|-----------------------------|-------------------------|-----|
| caa att ggt gct ttg ctt | caa ctc cac ttc | tgt ggg tct aat gtc atc | 528 |
| Gln Ile Gly Ala Leu Leu | Gln Leu His Phe Cys | Gly Ser Asn Val Ile | |
| 160 | 165 | 170 175 | |
| aga cat ttc ttc tgt gac atg | ccc caa ctg tta atc | ttg tcc tgt act | 576 |
| Arg His Phe Phe Cys Asp | Met Pro Gln Leu Leu | Ile Leu Ser Cys Thr | |
| | 180 | 185 190 | |
| gac act ttc ttt gta cag gtc atg | act gct ata tta acc atg | ttc ttt | 624 |
| Asp Thr Phe Phe Val Gln Val | Met Thr Ala Ile Leu Thr | Met Phe Phe | |
| | 195 | 200 205 | |
| ggg ata gta agt gcc cta gtt atc atg | ata tcc tat ggc tat att ggc | | 672 |
| Gly Ile Val Ser Ala Leu Val Ile Met | Ile Ser Tyr Gly Tyr Ile Gly | | |
| | 210 | 215 220 | |
| atc tcc atc atg aag atc act tca gct | aaa ggc agg tcc aag gca ttc | | 720 |
| Ile Ser Ile Met Lys Ile Thr Ser Ala | Lys Gly Arg Ser Lys Ala Phe | | |
| | 225 | 230 235 | |
| aac acc tgt gct tct cat cta aca gct | gtt tcc ctc ttc tat aca tca | | 768 |
| Asn Thr Cys Ala Ser His Leu Thr Ala | Val Ser Leu Phe Tyr Thr Ser | | |
| | 240 | 245 250 255 | |
| gga atc ttt gtc tat ttg agt tcc agc | tct gga ggt tct tca agc ttt | | 816 |
| Gly Ile Phe Val Tyr Leu Ser Ser Ser | Ser Gly Gly Ser Ser Ser Phe | | |
| | 260 | 265 270 | |
| gac aga ttt gca tct gtt ttc tac act | gtg gtc att ccc atg tta aat | | 864 |
| Asp Arg Phe Ala Ser Val Phe Tyr Thr | Val Val Ile Pro Met Leu Asn | | |
| | 275 | 280 285 | |
| ccc ttc att tac agt ttg agg aac aaa | gaa att aaa gat gcc tta aag | | 912 |
| Pro Phe Ile Tyr Ser Leu Arg Asn Lys | Glu Ile Lys Asp Ala Leu Lys | | |
| | 290 | 295 300 | |
| agg ttg caa aag aga aag tgc tgc tga | | | 939 |
| Arg Leu Gln Lys Arg Lys Cys Cys | | | |
| | 305 | 310 | |

<210> 74

<211> 311

<212> PRT

<213> Homo sapiens

<400> 74

| |
|---|
| Met Thr Gly Gly Gly Asn Ile Thr Glu Ile Thr Tyr Phe Ile Leu Leu |
| 1 5 10 15 |

| |
|---|
| Gly Phe Ser Asp Phe Pro Arg Ile Ile Lys Val Leu Phe Thr Ile Phe |
| 20 25 30 |

| |
|---|
| Leu Val Ile Tyr Ile Thr Ser Leu Ala Trp Asn Leu Ser Leu Ile Val |
| 35 40 45 |

Leu Ile Arg Met Asp Ser His Leu His Thr Pro Met Tyr Phe Phe Leu
 50 55 60
 Ser Asn Leu Ser Phe Ile Asp Val Cys Tyr Ile Ser Ser Thr Val Pro
 65 70 75 80
 Lys Met Leu Ser Asn Leu Leu Gln Glu Gln Thr Ile Thr Phe Val
 85 90 95
 Gly Cys Ile Ile Gln Tyr Phe Ile Phe Ser Thr Met Gly Leu Ser Glu
 100 105 110
 Ser Cys Leu Met Thr Ala Met Ala Tyr Asp Arg Tyr Ala Ala Ile Cys
 115 120 125
 Asn Pro Leu Leu Tyr Ser Ser Ile Met Ser Pro Thr Leu Cys Val Trp
 130 135 140
 Met Val Leu Gly Ala Tyr Met Thr Gly Leu Thr Ala Ser Leu Phe Gln
 145 150 155 160
 Ile Gly Ala Leu Leu Gln Leu His Phe Cys Gly Ser Asn Val Ile Arg
 165 170 175
 His Phe Phe Cys Asp Met Pro Gln Leu Leu Ile Leu Ser Cys Thr Asp
 180 185 190
 Thr Phe Phe Val Gln Val Met Thr Ala Ile Leu Thr Met Phe Phe Gly
 195 200 205
 Ile Val Ser Ala Leu Val Ile Met Ile Ser Tyr Gly Tyr Ile Gly Ile
 210 215 220
 Ser Ile Met Lys Ile Thr Ser Ala Lys Gly Arg Ser Lys Ala Phe Asn
 225 230 235 240
 Thr Cys Ala Ser His Leu Thr Ala Val Ser Leu Phe Tyr Thr Ser Gly
 245 250 255
 Ile Phe Val Tyr Leu Ser Ser Ser Ser Gly Gly Ser Ser Ser Phe Asp
 260 265 270
 Arg Phe Ala Ser Val Phe Tyr Thr Val Val Ile Pro Met Leu Asn Pro
 275 280 285
 Phe Ile Tyr Ser Leu Arg Asn Lys Glu Ile Lys Asp Ala Leu Lys Arg
 290 295 300
 Leu Gln Lys Arg Lys Cys Cys
 305 310

<210> 75
 <211> 959
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (13)..(942)

<400> 75

aaacctgagg ca atg gac cca cag aac tat tcc ttg gtg tca gaa ttt gtg 51
Met Asp Pro Gln Asn Tyr Ser Leu Val Ser Glu Phe Val

1

5

10

ttg cat gga ctc tgc act tca cga cat ctt caa aat ttt ttc ttt ata 99
Leu His Gly Leu Cys Thr Ser Arg His Leu Gln Asn Phe Phe Phe Ile
15 20 25

ttt ttc ttt ggg gtc tat gtg gcc att atg ctg ggt aac ctt ctc att 147
Phe Phe Phe Gly Val Tyr Val Ala Ile Met Leu Gly Asn Leu Leu Ile
30 35 40 45

ttg gtc act gta att tct gat ccc tgc ctg cac tcc tcc cct atg tac 195
Leu Val Thr Val Ile Ser Asp Pro Cys Leu His Ser Ser Pro Met Tyr
50 55 60

ttc ctg ctg ggg aac cta gct ttc ctg gac atg tgg ctg gcc tca ttt 243
Phe Leu Leu Gly Asn Leu Ala Phe Leu Asp Met Trp Leu Ala Ser Phe
65 70 75

gcc act ccc aag atg atc agg gat ttc ctt agt gat caa aaa ctc atc 291
Ala Thr Pro Lys Met Ile Arg Asp Phe Leu Ser Asp Gln Lys Leu Ile
80 85 90

tcc ttt gga gga tgt atg gct caa atc ttc ttc ttg cac ttt act ggt 339
Ser Phe Gly Gly Cys Met Ala Gln Ile Phe Phe Leu His Phe Thr Gly
95 100 105

ggg gct gag atg gtg ctc ctg gtt tcc atg gcc tat gac aga tat gtg 387
Gly Ala Glu Met Val Leu Leu Val Ser Met Ala Tyr Asp Arg Tyr Val
110 115 120 125

gcc ata tgc aaa ccc ttg cat tac atg act ttg atg agt tgg cag act 435
Ala Ile Cys Lys Pro Leu His Tyr Met Thr Leu Met Ser Trp Gln Thr
130 135 140

tgc atc agg cgg gtg ctg gct tca tgg gtc gtt gga ttt gtg cac tcc 483
Cys Ile Arg Arg Val Leu Ala Ser Trp Val Val Gly Phe Val His Ser
145 150 155

atc agt caa gtg gct ttc act gta aat ttg cct tac tgt ggc ccc aat 531
Ile Ser Gln Val Ala Phe Thr Val Asn Leu Pro Tyr Cys Gly Pro Asn
160 165 170

gag gta gac agc ttc ttc tgt gac ctc cct ctg gtg atc aaa ctt gcc 579
Glu Val Asp Ser Phe Phe Cys Asp Leu Pro Leu Val Ile Lys Leu Ala
175 180 185

tgc atg gac acc tat gtc ttg ggt ata att atg atc tca gac agt ggg 627
Cys Met Asp Thr Tyr Val Leu Gly Ile Ile Met Ile Ser Asp Ser Gly

| 190 | 195 | 200 | 205 | |
|---|-----|-----|-----|-----|
| ttg ctt tcc ttg agc tgt ttt ctg ctc ctc ctg atc tcc tac acc gtg | | | | 675 |
| Leu Leu Ser Leu Ser Cys Phe Leu Leu Leu Leu Ile Ser Tyr Thr Val | 210 | 215 | 220 | |
| atc ctc ctc gct atc aga cag cgt gct gcc ggt agc aca tcc aaa gca | | | | 723 |
| Ile Leu Leu Ala Ile Arg Gln Arg Ala Ala Gly Ser Thr Ser Lys Ala | 225 | 230 | 235 | |
| ctc tcc act tgc tct gca cat atc atg gta gtg acg ctg ttc ttt ggc | | | | 771 |
| Leu Ser Thr Cys Ser Ala His Ile Met Val Val Thr Leu Phe Phe Gly | 240 | 245 | 250 | |
| cct tgc att ttt gct tat gtg cgg cct ttc agt agg ttc tct gtg gac | | | | 819 |
| Pro Cys Ile Phe Ala Tyr Val Arg Pro Phe Ser Arg Phe Ser Val Asp | 255 | 260 | 265 | |
| aag ctg ctg tct gtg ttt tat acc att ttt act cca ctc ctg aac ccc | | | | 867 |
| Lys Leu Leu Ser Val Phe Tyr Thr Ile Phe Thr Pro Leu Leu Asn Pro | 270 | 275 | 280 | 285 |
| att atc tac aca ttg aga aat gag gaa atg aaa gca gct atg aag aaa | | | | 915 |
| Ile Ile Tyr Thr Leu Arg Asn Glu Glu Met Lys Ala Ala Met Lys Lys | 290 | 295 | 300 | |
| ctg caa aac cga cgg gtg act ttt caa tgaaatccag ccttcca | | | | 959 |
| Leu Gln Asn Arg Arg Val Thr Phe Gln | 305 | 310 | | |

<210> 76
 <211> 310
 <212> PRT
 <213> Homo sapiens

<400> 76
 Met Asp Pro Gln Asn Tyr Ser Leu Val Ser Glu Phe Val Leu His Gly
 1 5 10 15
 Leu Cys Thr Ser Arg His Leu Gln Asn Phe Phe Phe Ile Phe Phe Phe
 20 25 30
 Gly Val Tyr Val Ala Ile Met Leu Gly Asn Leu Leu Ile Leu Val Thr
 35 40 45
 Val Ile Ser Asp Pro Cys Leu His Ser Ser Pro Met Tyr Phe Leu Leu
 50 55 60
 Gly Asn Leu Ala Phe Leu Asp Met Trp Leu Ala Ser Phe Ala Thr Pro
 65 70 75 80
 Lys Met Ile Arg Asp Phe Leu Ser Asp Gln Lys Leu Ile Ser Phe Gly
 85 90 95
 Gly Cys Met Ala Gln Ile Phe Phe Leu His Phe Thr Gly Gly Ala Glu
 100 105 110

Met Val Leu Leu Val Ser Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys
 115 120 125
 Lys Pro Leu His Tyr Met Thr Leu Met Ser Trp Gln Thr Cys Ile Arg
 130 135 140
 Arg Val Leu Ala Ser Trp Val Val Gly Phe Val His Ser Ile Ser Gln
 145 150 155 160
 Val Ala Phe Thr Val Asn Leu Pro Tyr Cys Gly Pro Asn Glu Val Asp
 165 170 175
 Ser Phe Phe Cys Asp Leu Pro Leu Val Ile Lys Leu Ala Cys Met Asp
 180 185 190
 Thr Tyr Val Leu Gly Ile Ile Met Ile Ser Asp Ser Gly Leu Leu Ser
 195 200 205
 Leu Ser Cys Phe Leu Leu Leu Leu Ile Ser Tyr Thr Val Ile Leu Leu
 210 215 220
 Ala Ile Arg Gln Arg Ala Ala Gly Ser Thr Ser Lys Ala Leu Ser Thr
 225 230 235 240
 Cys Ser Ala His Ile Met Val Val Thr Leu Phe Phe Gly Pro Cys Ile
 245 250 255
 Phe Ala Tyr Val Arg Pro Phe Ser Arg Phe Ser Val Asp Lys Leu Leu
 260 265 270
 Ser Val Phe Tyr Thr Ile Phe Thr Pro Leu Leu Asn Pro Ile Ile Tyr
 275 280 285
 Thr Leu Arg Asn Glu Glu Met Lys Ala Ala Met Lys Lys Leu Gln Asn
 290 295 300
 Arg Arg Val Thr Phe Gln
 305 310

<210> 77
 <211> 930
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (7)..(918)

<400> 77
 aactaa atg ttg atg aat tac tct agt gcc act gaa ttt tat ctc ctt 48
 Met Leu Met Asn Tyr Ser Ser Ala Thr Glu Phe Tyr Leu Leu
 1 5 10

ggc ttc cct ggc tct gaa gaa cta cat cat atc ctt ttt gct ata ttc 96

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gly | Phe | Pro | Gly | Ser | Glu | Glu | Leu | His | His | Ile | Leu | Phe | Ala | Ile | Phe | | |
| 15 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| ttc | ttt | ttc | tac | ttg | gtg | aca | tta | atg | gga | aac | aca | gtc | atc | atc | atg | 144 | |
| Phe | Phe | Phe | Tyr | Leu | Val | Thr | Leu | Met | Gly | Asn | Thr | Val | Ile | Ile | Met | | |
| | | | | 35 | | | | | 40 | | | | | 45 | | | |
| att | gtc | tgt | gtg | gat | aaa | cgt | ctg | cag | tcc | ccc | atg | tat | ttc | ttc | ctc | 192 | |
| Ile | Val | Cys | Val | Asp | Lys | Arg | Leu | Gln | Ser | Pro | Met | Tyr | Phe | Phe | Leu | | |
| | | | 50 | | | | | 55 | | | | | 60 | | | | |
| ggc | cac | ctc | tct | gcc | ctg | gag | atc | ctg | gtc | aca | acc | ata | atc | gtc | ccc | 240 | |
| Gly | His | Leu | Ser | Ala | Leu | Glu | Ile | Leu | Val | Thr | Thr | Ile | Ile | Val | Pro | | |
| | | 65 | | | | | 70 | | | | | 75 | | | | | |
| gtg | atg | ctt | tgg | gga | ttg | ctg | ctc | cct | ggg | atg | cag | aca | ata | tat | ttg | 288 | |
| Val | Met | Leu | Trp | Gly | Leu | Leu | Leu | Pro | Gly | Met | Gln | Thr | Ile | Tyr | Leu | | |
| | 80 | | | | | 85 | | | | | 90 | | | | | | |
| tct | gcc | tgt | gtt | gtc | cag | ctc | ttc | ttg | tac | ctt | gct | gtg | ggg | aca | aca | 336 | |
| Ser | Ala | Cys | Val | Val | Gln | Leu | Phe | Leu | Tyr | Leu | Ala | Val | Gly | Thr | Thr | | |
| | 95 | | | | 100 | | | | | 105 | | | | | 110 | | |
| gag | ttc | gca | tta | ctt | gga | gca | atg | gct | gtg | gac | cgt | tat | gtg | gct | gtc | 384 | |
| Glu | Phe | Ala | Leu | Leu | Gly | Ala | Met | Ala | Val | Asp | Arg | Tyr | Val | Ala | Val | | |
| | | | | 115 | | | | | 120 | | | | | 125 | | | |
| tgt | aac | cct | ctg | agg | tac | aac | atc | att | atg | aac | aga | cac | acc | tgc | aac | 432 | |
| Cys | Asn | Pro | Leu | Arg | Tyr | Asn | Ile | Ile | Met | Asn | Arg | His | Thr | Cys | Asn | | |
| | | | 130 | | | | | 135 | | | | | 140 | | | | |
| ttt | gtg | gtt | ctt | gtg | tca | tgg | gtg | ttt | ggg | ttt | ctt | ttt | caa | atc | tgg | 480 | |
| Phe | Val | Val | Leu | Val | Ser | Trp | Val | Phe | Gly | Phe | Leu | Phe | Gln | Ile | Trp | | |
| | | 145 | | | | | 150 | | | | | 155 | | | | | |
| ccg | gtc | tat | gtc | atg | ttt | cag | ctt | act | tac | tgc | aaa | tca | aat | gtg | gtg | 528 | |
| Pro | Val | Tyr | Val | Met | Phe | Gln | Leu | Thr | Tyr | Cys | Lys | Ser | Asn | Val | Val | | |
| | 160 | | | | | 165 | | | | | 170 | | | | | | |
| aac | aat | ttt | ttt | tgt | gac | cga | ggg | caa | ttg | ctc | aaa | cta | tcc | tgc | aat | 576 | |
| Asn | Asn | Phe | Phe | Cys | Asp | Arg | Gly | Gln | Leu | Leu | Lys | Leu | Ser | Cys | Asn | | |
| | 175 | | | | 180 | | | | | 185 | | | | | 190 | | |
| aat | act | ctt | ttc | acg | gag | ttt | atc | ctc | ttc | tta | atg | gct | gtt | ttt | gtt | 624 | |
| Asn | Thr | Leu | Phe | Thr | Glu | Phe | Ile | Leu | Phe | Leu | Met | Ala | Val | Phe | Val | | |
| | | | | 195 | | | | | 200 | | | | | 205 | | | |
| ctc | ttt | ggt | tct | ttg | atc | cct | aca | att | gtc | tcc | aac | gcc | tac | atc | atc | 672 | |
| Leu | Phe | Gly | Ser | Leu | Ile | Pro | Thr | Ile | Val | Ser | Asn | Ala | Tyr | Ile | Ile | | |
| | | | 210 | | | | | 215 | | | | | 220 | | | | |
| tcc | acc | att | ctc | aag | atc | ccg | tca | tcc | tct | ggc | cgg | agg | aaa | tcc | ttc | 720 | |
| Ser | Thr | Ile | Leu | Lys | Ile | Pro | Ser | Ser | Ser | Gly | Arg | Arg | Lys | Ser | Phe | | |
| | | 225 | | | | | 230 | | | | | 235 | | | | | |
| tcc | act | tgt | gcc | tcc | cac | ttc | acc | tgt | gtt | gtg | att | ggc | tac | ggc | agc | 768 | |
| Ser | Thr | Cys | Ala | Ser | His | Phe | Thr | Cys | Val | Val | Ile | Gly | Tyr | Gly | Ser | | |

| 240 | 245 | 250 | |
|---|-----|-----|-----|
| tgc ttg ttt ctc tac gtg aaa ccc aag caa acg cag gca gct gat tac | | | 816 |
| Cys Leu Phe Leu Tyr Val Lys Pro Lys Gln Thr Gln Ala Ala Asp Tyr | | | |
| 255 | 260 | 265 | 270 |
| aat tgg gca gtt tcc ccg atg gtt tca gta gta act cct ttc ctc aat | | | 864 |
| Asn Trp Ala Val Ser Pro Met Val Ser Val Val Thr Pro Phe Leu Asn | | | |
| | 275 | 280 | 285 |
| cct ttc atc ttc acc ctc cgg aat gat aaa gtc ata gag gcc ctt cgg | | | 912 |
| Pro Phe Ile Phe Thr Leu Arg Asn Asp Lys Val Ile Glu Ala Leu Arg | | | |
| | 290 | 295 | 300 |
| atg ggg tgaaacgctg ct | | | 930 |
| Met Gly | | | |

<210> 78
 <211> 304
 <212> PRT
 <213> Homo sapiens

<400> 78
 Met Leu Met Asn Tyr Ser Ser Ala Thr Glu Phe Tyr Leu Leu Gly Phe
 1 5 10 15
 Pro Gly Ser Glu Glu Leu His His Ile Leu Phe Ala Ile Phe Phe Phe
 20 25 30
 Phe Tyr Leu Val Thr Leu Met Gly Asn Thr Val Ile Ile Met Ile Val
 35 40 45
 Cys Val Asp Lys Arg Leu Gln Ser Pro Met Tyr Phe Phe Leu Gly His
 50 55 60
 Leu Ser Ala Leu Glu Ile Leu Val Thr Thr Ile Ile Val Pro Val Met
 65 70 75 80
 Leu Trp Gly Leu Leu Leu Pro Gly Met Gln Thr Ile Tyr Leu Ser Ala
 85 90 95
 Cys Val Val Gln Leu Phe Leu Tyr Leu Ala Val Gly Thr Thr Glu Phe
 100 105 110
 Ala Leu Leu Gly Ala Met Ala Val Asp Arg Tyr Val Ala Val Cys Asn
 115 120 125
 Pro Leu Arg Tyr Asn Ile Ile Met Asn Arg His Thr Cys Asn Phe Val
 130 135 140
 Val Leu Val Ser Trp Val Phe Gly Phe Leu Phe Gln Ile Trp Pro Val
 145 150 155 160
 Tyr Val Met Phe Gln Leu Thr Tyr Cys Lys Ser Asn Val Val Asn Asn
 165 170 175

Phe Phe Cys Asp Arg Gly Gln Leu Leu Lys Leu Ser Cys Asn Asn Thr
 180 185 190
 Leu Phe Thr Glu Phe Ile Leu Phe Leu Met Ala Val Phe Val Leu Phe
 195 200 205
 Gly Ser Leu Ile Pro Thr Ile Val Ser Asn Ala Tyr Ile Ile Ser Thr
 210 215 220
 Ile Leu Lys Ile Pro Ser Ser Ser Gly Arg Arg Lys Ser Phe Ser Thr
 225 230 235 240
 Cys Ala Ser His Phe Thr Cys Val Val Ile Gly Tyr Gly Ser Cys Leu
 245 250 255
 Phe Leu Tyr Val Lys Pro Lys Gln Thr Gln Ala Ala Asp Tyr Asn Trp
 260 265 270
 Ala Val Ser Pro Met Val Ser Val Val Thr Pro Phe Leu Asn Pro Phe
 275 280 285
 Ile Phe Thr Leu Arg Asn Asp Lys Val Ile Glu Ala Leu Arg Met Gly
 290 295 300

<210> 79
 <211> 974
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(957)

<400> 79
 atg aat cat gtg gta aaa cac aat cac acg gca gtg acc aag gtg act 48
 Met Asn His Val Val Lys His Asn His Thr Ala Val Thr Lys Val Thr
 1 5 10 15
 gaa ttt att ctc atg ggg att aca gac aac act ggg ctg cag gct cca 96
 Glu Phe Ile Leu Met Gly Ile Thr Asp Asn Thr Gly Leu Gln Ala Pro
 20 25 30
 ctg ttt gga ctc ttc ctc atc ata tat ctg gtc aca gtg ata ggc aat 144
 Leu Phe Gly Leu Phe Leu Ile Ile Tyr Leu Val Thr Val Ile Gly Asn
 35 40 45
 ctg ggc atg gtt atc ttg acc tac ttg gac tcc aag cta cac acc ccc 192
 Leu Gly Met Val Ile Leu Thr Tyr Leu Asp Ser Lys Leu His Thr Pro
 50 55 60
 atg tac ttt ttc ctt aga cat ttg tca atc act gat ctt ggt tac tcc 240
 Met Tyr Phe Phe Leu Arg His Leu Ser Ile Thr Asp Leu Gly Tyr Ser
 65 70 75 80
 act gtc att gcc ccg aag atg tta gta aac ttc ata gtg cac aaa aac 288

| | |
|---|-----|
| Thr Val Ile Ala Pro Lys Met Leu Val Asn Phe Ile Val His Lys Asn | |
| 85 90 95 | |
| aca att tct tac aat tgg tat gcc act cag cta gca ttc ttt gag att | 336 |
| Thr Ile Ser Tyr Asn Trp Tyr Ala Thr Gln Leu Ala Phe Phe Glu Ile | |
| 100 105 110 | |
| ttc atc atc tct gag ctc ttt att cta tca gca atg gcc tat gat cgc | 384 |
| Phe Ile Ile Ser Glu Leu Phe Ile Leu Ser Ala Met Ala Tyr Asp Arg | |
| 115 120 125 | |
| tac gta gcc atc tgt aaa cct ctt ctg tac gtg atc atc atg gca gag | 432 |
| Tyr Val Ala Ile Cys Lys Pro Leu Leu Tyr Val Ile Ile Met Ala Glu | |
| 130 135 140 | |
| aaa gta ctt tgg gtg ctg gta att gtt ccc tat ctc tat agc acg ttt | 480 |
| Lys Val Leu Trp Val Leu Val Ile Val Pro Tyr Leu Tyr Ser Thr Phe | |
| 145 150 155 160 | |
| gtg tca cta ttt ctc aca att aag tta ttt aaa ctg tcc ttc tgt ggc | 528 |
| Val Ser Leu Phe Leu Thr Ile Lys Leu Phe Lys Leu Ser Phe Cys Gly | |
| 165 170 175 | |
| tca aac ata atc agc tat ttt tac tgt gac tgt atc cct ctg atg tcc | 576 |
| Ser Asn Ile Ile Ser Tyr Phe Tyr Cys Asp Cys Ile Pro Leu Met Ser | |
| 180 185 190 | |
| ata ctc tgt tct gac aca aat gaa tta gaa tta ata att ttg atc ttc | 624 |
| Ile Leu Cys Ser Asp Thr Asn Glu Leu Glu Leu Ile Ile Leu Ile Phe | |
| 195 200 205 | |
| tca ggc tgt aat ttg ctc ttc tcc ctc tca att gtt ctc ata tcc tac | 672 |
| Ser Gly Cys Asn Leu Leu Phe Ser Leu Ser Ile Val Leu Ile Ser Tyr | |
| 210 215 220 | |
| atg ttt att cta gtg gcc att ctc aga atg aac tca agg aaa ggg agg | 720 |
| Met Phe Ile Leu Val Ala Ile Leu Arg Met Asn Ser Arg Lys Gly Arg | |
| 225 230 235 240 | |
| tac aaa gcc ttc tcc acc tgt agc tct cat ctg aca gtg gtg atc atg | 768 |
| Tyr Lys Ala Phe Ser Thr Cys Ser Ser His Leu Thr Val Val Ile Met | |
| 245 250 255 | |
| ttc tat ggg aca ttg tta ttt att tac ttg caa ccc gag tcc agt cat | 816 |
| Phe Tyr Gly Thr Leu Leu Phe Ile Tyr Leu Gln Pro Glu Ser Ser His | |
| 260 265 270 | |
| act ttg gct att gat aaa atg gcc tca gtg ttt tat acc ctg ttg att | 864 |
| Thr Leu Ala Ile Asp Lys Met Ala Ser Val Phe Tyr Thr Leu Leu Ile | |
| 275 280 285 | |
| cct atg ctg aat ccg ttg atc tac agc cta agg aac aaa gaa gta aaa | 912 |
| Pro Met Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn Lys Glu Val Lys | |
| 290 295 300 | |
| gat gct cta aag aga act tta acc aat cga ttc aaa att ccc att | 957 |
| Asp Ala Leu Lys Arg Thr Leu Thr Asn Arg Phe Lys Ile Pro Ile | |

305 310 315

taatatcttta atactca

974

<210> 80

<211> 319

<212> PRT

<213> Homo sapiens

<400> 80

Met Asn His Val Val Lys His Asn His Thr Ala Val Thr Lys Val Thr
1 5 10 15

Glu Phe Ile Leu Met Gly Ile Thr Asp Asn Thr Gly Leu Gln Ala Pro
20 25 30

Leu Phe Gly Leu Phe Leu Ile Ile Tyr Leu Val Thr Val Ile Gly Asn
35 40 45

Leu Gly Met Val Ile Leu Thr Tyr Leu Asp Ser Lys Leu His Thr Pro
50 55 60

Met Tyr Phe Phe Leu Arg His Leu Ser Ile Thr Asp Leu Gly Tyr Ser
65 70 75 80

Thr Val Ile Ala Pro Lys Met Leu Val Asn Phe Ile Val His Lys Asn
85 90 95

Thr Ile Ser Tyr Asn Trp Tyr Ala Thr Gln Leu Ala Phe Phe Glu Ile
100 105 110

Phe Ile Ile Ser Glu Leu Phe Ile Leu Ser Ala Met Ala Tyr Asp Arg
115 120 125

Tyr Val Ala Ile Cys Lys Pro Leu Leu Tyr Val Ile Ile Met Ala Glu
130 135 140

Lys Val Leu Trp Val Leu Val Ile Val Pro Tyr Leu Tyr Ser Thr Phe
145 150 155 160

Val Ser Leu Phe Leu Thr Ile Lys Leu Phe Lys Leu Ser Phe Cys Gly
165 170 175

Ser Asn Ile Ile Ser Tyr Phe Tyr Cys Asp Cys Ile Pro Leu Met Ser
180 185 190

Ile Leu Cys Ser Asp Thr Asn Glu Leu Glu Leu Ile Ile Leu Ile Phe
195 200 205

Ser Gly Cys Asn Leu Leu Phe Ser Leu Ser Ile Val Leu Ile Ser Tyr
210 215 220

Met Phe Ile Leu Val Ala Ile Leu Arg Met Asn Ser Arg Lys Gly Arg
225 230 235 240

Tyr Lys Ala Phe Ser Thr Cys Ser Ser His Leu Thr Val Val Ile Met

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 245 | | | | | | 250 | | | | | 255 |
| Phe | Tyr | Gly | Thr | Leu | Leu | Phe | Ile | Tyr | Leu | Gln | Pro | Glu | Ser | Ser | His |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Thr | Leu | Ala | Ile | Asp | Lys | Met | Ala | Ser | Val | Phe | Tyr | Thr | Leu | Leu | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Pro | Met | Leu | Asn | Pro | Leu | Ile | Tyr | Ser | Leu | Arg | Asn | Lys | Glu | Val | Lys |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | Ala | Leu | Lys | Arg | Thr | Leu | Thr | Asn | Arg | Phe | Lys | Ile | Pro | Ile | |
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 Met Leu Leu Ser Asn Ile Thr Gln Phe Ser Pro Ile Phe
 1 5 10

tat ctc acc agc ttt cct gga ttg gaa ggc atc aaa cac tgg att ttc 98
 Tyr Leu Thr Ser Phe Pro Gly Leu Glu Gly Ile Lys His Trp Ile Phe
 15 20 25

atc ccc ttt ttc ttt atg tac atg gtt gcc atc tca ggc aat tgt ttc 146
 Ile Pro Phe Phe Phe Met Tyr Met Val Ala Ile Ser Gly Asn Cys Phe
 30 35 40 45

att ctg atc att att aag acc aac cct cgt ctg cac aca ccc atg tac 194
 Ile Leu Ile Ile Ile Lys Thr Asn Pro Arg Leu His Thr Pro Met Tyr
 50 55 60

tat cta cta tcc ttg ctg gcc ctc act gac ctg ggg ctg tgt gtg tcc 242
 Tyr Leu Leu Ser Leu Leu Ala Leu Thr Asp Leu Gly Leu Cys Val Ser
 65 70 75

acg ttg ccc acc act atg ggg atc ttc tgg ttt aac tcc cat agt atc 290
 Thr Leu Pro Thr Thr Met Gly Ile Phe Trp Phe Asn Ser His Ser Ile
 80 85 90

tac ttt gga gcg tgt caa atc cag atg ttc tgc atc cac tct ttt tcc 338
 Tyr Phe Gly Ala Cys Gln Ile Gln Met Phe Cys Ile His Ser Phe Ser
 95 100 105

ttc atg gag tcc tca gtg ctc ctc atg atg tcc ttt gac cgc ttt gtg 386
 Phe Met Glu Ser Ser Val Leu Leu Met Met Ser Phe Asp Arg Phe Val
 110 115 120 125

| | |
|--|------|
| gcc atc tgc cac cct ctg agg tat tgc gtc att atc act ggc cag caa | 434 |
| Ala Ile Cys His Pro Leu Arg Tyr Ser Val Ile Ile Thr Gly Gln Gln | |
| 130 135 140 | |
| gtg gtc aga gca ggc cta att gtc atc ttc cgg gga cct gtg gcc act | 482 |
| Val Val Arg Ala Gly Leu Ile Val Ile Phe Arg Gly Pro Val Ala Thr | |
| 145 150 155 | |
| atc cct att gtc ctc ctc ctg aag gct ttt ccc tac tgt gga tct gtg | 530 |
| Ile Pro Ile Val Leu Leu Leu Lys Ala Phe Pro Tyr Cys Gly Ser Val | |
| 160 165 170 | |
| gtc ctc tcc cac tca ttt tgc ctg cac cag gaa gtg ata cag ctg gcc | 578 |
| Val Leu Ser His Ser Phe Cys Leu His Gln Glu Val Ile Gln Leu Ala | |
| 175 180 185 | |
| tgc aca gat atc acc ttc aat aat ctg tat gga ctg atg gtg gta gtt | 626 |
| Cys Thr Asp Ile Thr Phe Asn Asn Leu Tyr Gly Leu Met Val Val Val | |
| 190 195 200 205 | |
| ttc act gtg atg ctg gac ctg gtg ctc atc gca ctg tcc tat gga ctc | 674 |
| Phe Thr Val Met Leu Asp Leu Val Leu Ile Ala Leu Ser Tyr Gly Leu | |
| 210 215 220 | |
| atc ctg cac aca gta gca ggc ctg gcc tcc caa gag gag cag cgc cgt | 722 |
| Ile Leu His Thr Val Ala Gly Leu Ala Ser Gln Glu Glu Gln Arg Arg | |
| 225 230 235 | |
| gcc ttt cag aca tgc acc gct cat ctc tgt gct gtg cta gta ttc ttt | 770 |
| Ala Phe Gln Thr Cys Thr Ala His Leu Cys Ala Val Leu Val Phe Phe | |
| 240 245 250 | |
| gtg ccc atg atg ggg ctg tcc ccg gtg cac cgt ttt ggg aag cat gcc | 818 |
| Val Pro Met Met Gly Leu Ser Pro Val His Arg Phe Gly Lys His Ala | |
| 255 260 265 | |
| cca cct gct att cat ctt ctt atg gcc aat gtc tac ctt ttt gtg cct | 866 |
| Pro Pro Ala Ile His Leu Leu Met Ala Asn Val Tyr Leu Phe Val Pro | |
| 270 275 280 285 | |
| ccc atg ctt aac cca atc ata tac agc att aag acc aag gag atc cac | 914 |
| Pro Met Leu Asn Pro Ile Ile Tyr Ser Ile Lys Thr Lys Glu Ile His | |
| 290 295 300 | |
| cgt gcc att atc aag ttc cta ggt ctt aaa aag gcc agt aaa | 956 |
| Arg Ala Ile Ile Lys Phe Leu Gly Leu Lys Lys Ala Ser Lys | |
| 305 310 315 | |
| tgagtcctgg ggctaaaact aacccataga ggcctatcca acagtaaagt agccccaat | 1016 |
| gggactga | 1024 |

<210> 82
 <211> 315
 <212> PRT

<213> Homo sapiens

<400> 82

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| Met | Leu | Leu | Ser | Asn | Ile | Thr | Gln | Phe | Ser | Pro | Ile | Phe | Tyr | Leu | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Phe | Pro | Gly | Leu | Glu | Gly | Ile | Lys | His | Trp | Ile | Phe | Ile | Pro | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Phe | Phe | Met | Tyr | Met | Val | Ala | Ile | Ser | Gly | Asn | Cys | Phe | Ile | Leu | Ile |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Ile | Lys | Thr | Asn | Pro | Arg | Leu | His | Thr | Pro | Met | Tyr | Tyr | Leu | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Leu | Leu | Ala | Leu | Thr | Asp | Leu | Gly | Leu | Cys | Val | Ser | Thr | Leu | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Thr | Met | Gly | Ile | Phe | Trp | Phe | Asn | Ser | His | Ser | Ile | Tyr | Phe | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Cys | Gln | Ile | Gln | Met | Phe | Cys | Ile | His | Ser | Phe | Ser | Phe | Met | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Ser | Val | Leu | Leu | Met | Met | Ser | Phe | Asp | Arg | Phe | Val | Ala | Ile | Cys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| His | Pro | Leu | Arg | Tyr | Ser | Val | Ile | Ile | Thr | Gly | Gln | Gln | Val | Val | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Gly | Leu | Ile | Val | Ile | Phe | Arg | Gly | Pro | Val | Ala | Thr | Ile | Pro | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Leu | Leu | Leu | Lys | Ala | Phe | Pro | Tyr | Cys | Gly | Ser | Val | Val | Leu | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | Ser | Phe | Cys | Leu | His | Gln | Glu | Val | Ile | Gln | Leu | Ala | Cys | Thr | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ile | Thr | Phe | Asn | Asn | Leu | Tyr | Gly | Leu | Met | Val | Val | Val | Phe | Thr | Val |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Met | Leu | Asp | Leu | Val | Leu | Ile | Ala | Leu | Ser | Tyr | Gly | Leu | Ile | Leu | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Thr | Val | Ala | Gly | Leu | Ala | Ser | Gln | Glu | Glu | Gln | Arg | Arg | Ala | Phe | Gln |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Cys | Thr | Ala | His | Leu | Cys | Ala | Val | Leu | Val | Phe | Phe | Val | Pro | Met |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Met | Gly | Leu | Ser | Pro | Val | His | Arg | Phe | Gly | Lys | His | Ala | Pro | Pro | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | His | Leu | Leu | Met | Ala | Asn | Val | Tyr | Leu | Phe | Val | Pro | Pro | Met | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |

Asn Pro Ile Ile Tyr Ser Ile Lys Thr Lys Glu Ile His Arg Ala Ile
 290 295 300

Ile Lys Phe Leu Gly Leu Lys Lys Ala Ser Lys
 305 310 315

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 <213> Homo sapiens

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 ctc cag ctt ttc tat ttt tgt ttc ttc tct gtg ttg tat aca gtc att 95
 Leu Gln Leu Phe Tyr Phe Cys Phe Phe Ser Val Leu Tyr Thr Val Ile
 20 25 30
 gtg ctg gga aat ctt ctc att atc ctc aca gtg act tct gat acc agc 143
 Val Leu Gly Asn Leu Leu Ile Ile Leu Thr Val Thr Ser Asp Thr Ser
 35 40 45
 ctg cac tcc cct atg tac ttt ctc ttg gga aac ctt tcc ttt gtt gac 191
 Leu His Ser Pro Met Tyr Phe Leu Leu Gly Asn Leu Ser Phe Val Asp
 50 55 60
 att tgt cag gct tct ttt gct acc cct aaa atg att gca gat ttt ctg 239
 Ile Cys Gln Ala Ser Phe Ala Thr Pro Lys Met Ile Ala Asp Phe Leu
 65 70 75
 agt gca cac gag acc ata tct ttc agt ggc tgc ata gcc caa att ttc 287
 Ser Ala His Glu Thr Ile Ser Phe Ser Gly Cys Ile Ala Gln Ile Phe
 80 85 90 95
 ttt att cac ctt ttt act gga ggg gag atg gtg cta ctt gtt tgc atg 335
 Phe Ile His Leu Phe Thr Gly Gly Glu Met Val Leu Leu Val Ser Met
 100 105 110
 gcc tat gac agg tat gta gcc ata tgc aaa ccc tta tac tat gtg gtc 383
 Ala Tyr Asp Arg Tyr Val Ala Ile Cys Lys Pro Leu Tyr Tyr Val Val
 115 120 125
 atc atg agc cga agg aca tgc act gtc ttg gta atg atc tcc tgg gct 431
 Ile Met Ser Arg Arg Thr Cys Thr Val Leu Val Met Ile Ser Trp Ala
 130 135 140
 gtg agc ttg gtg cac aca tta agc cag tta tca ttt act gtg aac ctg 479
 Val Ser Leu Val His Thr Leu Ser Gln Leu Ser Phe Thr Val Asn Leu
 145 150 155

| | |
|---|-----|
| cct ttt tgt gga cct aat gta gta gac agc ttt ttt tgt gat ctt cct | 527 |
| Pro Phe Cys Gly Pro Asn Val Val Asp Ser Phe Phe Cys Asp Leu Pro | |
| 160 165 170 175 | |
| cga gtc acc aaa ctt gcc tgc ctg gac tct tac atc att gaa ata cta | 575 |
| Arg Val Thr Lys Leu Ala Cys Leu Asp Ser Tyr Ile Ile Glu Ile Leu | |
| 180 185 190 | |
| att gtg gtc aat agt gga att ctt tcc cta agc act ttc tct ctc ttg | 623 |
| Ile Val Val Asn Ser Gly Ile Leu Ser Leu Ser Thr Phe Ser Leu Leu | |
| 195 200 205 | |
| gtc agc tcc tac atc att att ctt gtt aca gtt tgg ctc aag tct tca | 671 |
| Val Ser Ser Tyr Ile Ile Ile Leu Val Thr Val Trp Leu Lys Ser Ser | |
| 210 215 220 | |
| gct gca atg gca aag gca ttt tct acg ctg gct tcc cat att gca gta | 719 |
| Ala Ala Met Ala Lys Ala Phe Ser Thr Leu Ala Ser His Ile Ala Val | |
| 225 230 235 | |
| gta ata tta ttc ttt gga cct tgc atc ttc atc tat gtg tgg ccc ttt | 767 |
| Val Ile Leu Phe Phe Gly Pro Cys Ile Phe Ile Tyr Val Trp Pro Phe | |
| 240 245 250 255 | |
| acc atc tct cct ttg gat aaa ttt ctt gcc ata ttt tac act gtt ttc | 815 |
| Thr Ile Ser Pro Leu Asp Lys Phe Leu Ala Ile Phe Tyr Thr Val Phe | |
| 260 265 270 | |
| acc ccc gtc cta aac ccc att att tat aca cta agg aat agg gat atg | 863 |
| Thr Pro Val Leu Asn Pro Ile Ile Tyr Thr Leu Arg Asn Arg Asp Met | |
| 275 280 285 | |
| aag gct gcc gta agg aaa att gtg aac cat tac ctg agg cca agg aga | 911 |
| Lys Ala Ala Val Arg Lys Ile Val Asn His Tyr Leu Arg Pro Arg Arg | |
| 290 295 300 | |
| att tct gaa atg tca cta gta gtg aga act tcc ttt cat taagacaaaa | 960 |
| Ile Ser Glu Met Ser Leu Val Val Arg Thr Ser Phe His | |
| 305 310 315 | |
| ctccttcaa | 969 |

<210> 84
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 <212> PRT
 <213> Homo sapiens

<400> 84
 Val Val Ser Glu Phe Val Leu Leu Gly Leu Cys Ser Ser Gln Lys Leu
 1 5 10 15
 Gln Leu Phe Tyr Phe Cys Phe Phe Ser Val Leu Tyr Thr Val Ile Val
 20 25 30
 Leu Gly Asn Leu Leu Ile Ile Leu Thr Val Thr Ser Asp Thr Ser Leu

| 35 | | | | | 40 | | | | | 45 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Ser | Pro | Met | Tyr | Phe | Leu | Leu | Gly | Asn | Leu | Ser | Phe | Val | Asp | Ile |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Cys | Gln | Ala | Ser | Phe | Ala | Thr | Pro | Lys | Met | Ile | Ala | Asp | Phe | Leu | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ala | His | Glu | Thr | Ile | Ser | Phe | Ser | Gly | Cys | Ile | Ala | Gln | Ile | Phe | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | His | Leu | Phe | Thr | Gly | Gly | Glu | Met | Val | Leu | Leu | Val | Ser | Met | Ala |
| | | 100 | | | | | 105 | | | | | | 110 | | |
| Tyr | Asp | Arg | Tyr | Val | Ala | Ile | Cys | Lys | Pro | Leu | Tyr | Tyr | Val | Val | Ile |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Met | Ser | Arg | Arg | Thr | Cys | Thr | Val | Leu | Val | Met | Ile | Ser | Trp | Ala | Val |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Leu | Val | His | Thr | Leu | Ser | Gln | Leu | Ser | Phe | Thr | Val | Asn | Leu | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Phe | Cys | Gly | Pro | Asn | Val | Val | Asp | Ser | Phe | Phe | Cys | Asp | Leu | Pro | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Thr | Lys | Leu | Ala | Cys | Leu | Asp | Ser | Tyr | Ile | Ile | Glu | Ile | Leu | Ile |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Val | Val | Asn | Ser | Gly | Ile | Leu | Ser | Leu | Ser | Thr | Phe | Ser | Leu | Leu | Val |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Ser | Tyr | Ile | Ile | Ile | Leu | Val | Thr | Val | Trp | Leu | Lys | Ser | Ser | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ala | Met | Ala | Lys | Ala | Phe | Ser | Thr | Leu | Ala | Ser | His | Ile | Ala | Val | Val |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Ile | Leu | Phe | Phe | Gly | Pro | Cys | Ile | Phe | Ile | Tyr | Val | Trp | Pro | Phe | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ile | Ser | Pro | Leu | Asp | Lys | Phe | Leu | Ala | Ile | Phe | Tyr | Thr | Val | Phe | Thr |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Pro | Val | Leu | Asn | Pro | Ile | Ile | Tyr | Thr | Leu | Arg | Asn | Arg | Asp | Met | Lys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | Ala | Val | Arg | Lys | Ile | Val | Asn | His | Tyr | Leu | Arg | Pro | Arg | Arg | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Glu | Met | Ser | Leu | Val | Val | Arg | Thr | Ser | Phe | His | | | | |
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 <211> 934

<212> DNA
 <213> Homo sapiens

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 1 5 10

ctg ggg ctc tcg cag act cgg gag ctc cag cgt ttc ctg ttt cta atg 98
 Leu Gly Leu Ser Gln Thr Arg Glu Leu Gln Arg Phe Leu Phe Leu Met
 15 20 25 30

ttc ctg ttt gtc tac atc acc act gtt atg gga aac atc ctt atc atc 146
 Phe Leu Phe Val Tyr Ile Thr Thr Val Met Gly Asn Ile Leu Ile Ile
 35 40 45

atc aca gtg acc tct gat tcc cag ctc cac aca ccc atg tac ttt ctg 194
 Ile Thr Val Thr Ser Asp Ser Gln Leu His Thr Pro Met Tyr Phe Leu
 50 55 60

ctc cga aac ctg gct gtc cta gac ctc tgt ttc tct tca gtc act gct 242
 Leu Arg Asn Leu Ala Val Leu Asp Leu Cys Phe Ser Ser Val Thr Ala
 65 70 75

ccc aaa atg cta gtg gac ctc ctc tct gag aag aaa acc atc tct tac 290
 Pro Lys Met Leu Val Asp Leu Leu Ser Glu Lys Lys Thr Ile Ser Tyr
 80 85 90

cag ggc tgc atg ggt cag atc ttc ttc ttc cac ttt ttg gga ggt gcc 338
 Gln Gly Cys Met Gly Gln Ile Phe Phe Phe His Phe Leu Gly Gly Ala
 95 100 105 110

atg gtc ttc ttc ctc tca gtg atg gcc ttt gac cgc ctc att gcc atc 386
 Met Val Phe Phe Leu Ser Val Met Ala Phe Asp Arg Leu Ile Ala Ile
 115 120 125

tcc cgg ccc ctc cgc tat gtc acc gtc atg aac act cag ctc tgg gtg 434
 Ser Arg Pro Leu Arg Tyr Val Thr Val Met Asn Thr Gln Leu Trp Val
 130 135 140

ggg ctg gtg gta gcc acc tgg gtg gga ggc ttt gtc cac tct att gtc 482
 Gly Leu Val Val Ala Thr Trp Val Gly Gly Phe Val His Ser Ile Val
 145 150 155

cag ctg gct ctg atg ctc cca ctg ccc ttc tgt ggc ccc aac att ttg 530
 Gln Leu Ala Leu Met Leu Pro Leu Pro Phe Cys Gly Pro Asn Ile Leu
 160 165 170

gat aac ttc tac tgt gat gtt ccc caa gta ctg aga ctt gcc tgc act 578
 Asp Asn Phe Tyr Cys Asp Val Pro Gln Val Leu Arg Leu Ala Cys Thr
 175 180 185 190

gac acc tca ctg ctg gag ttc ctc aag atc tcc aac agt ggg ctg ctg 626

| | |
|---|-----|
| Asp Thr Ser Leu Leu Glu Phe Leu Lys Ile Ser Asn Ser Gly Leu Leu | |
| 195 200 205 | |
| gat gtc gtc tgg ttc ttc ctc ctc ctg atg tcc tac tta ttc atc ctg | 674 |
| Asp Val Val Trp Phe Phe Leu Leu Leu Met Ser Tyr Leu Phe Ile Leu | |
| 210 215 220 | |
| gtg atg ctg agg tca cat cca ggg gag gca aga agg aag gca gct tcc | 722 |
| Val Met Leu Arg Ser His Pro Gly Glu Ala Arg Arg Lys Ala Ala Ser | |
| 225 230 235 | |
| acc tgc acc acc cac atc atc gtg gtt tcc atg atc ttc gtt cca agc | 770 |
| Thr Cys Thr Thr His Ile Ile Val Val Ser Met Ile Phe Val Pro Ser | |
| 240 245 250 | |
| att tac ctc tat gcc cgg ccc ttc act cca ttc cct atg gac aag ctt | 818 |
| Ile Tyr Leu Tyr Ala Arg Pro Phe Thr Pro Phe Pro Met Asp Lys Leu | |
| 255 260 265 270 | |
| gtg tcc atc ggc cac aca gtc atg acc ccc atg ctc aac ccc atg atc | 866 |
| Val Ser Ile Gly His Thr Val Met Thr Pro Met Leu Asn Pro Met Ile | |
| 275 280 285 | |
| tat aac ctg agg aac ccg gac atg cag gca gca gtg aga aga tta ggg | 914 |
| Tyr Asn Leu Arg Asn Pro Asp Met Gln Ala Ala Val Arg Arg Leu Gly | |
| 290 295 300 | |
| aga cac cgg ctg gtt tgaga | 934 |
| Arg His Arg Leu Val | |
| 305 | |

<210> 86
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 <212> PRT
 <213> Homo sapiens

| | |
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| Leu Ser Gln Thr Arg Glu Leu Gln Arg Phe Leu Phe Leu Met Phe Leu | |
| 20 25 30 | |
| Phe Val Tyr Ile Thr Thr Val Met Gly Asn Ile Leu Ile Ile Ile Thr | |
| 35 40 45 | |
| Val Thr Ser Asp Ser Gln Leu His Thr Pro Met Tyr Phe Leu Leu Arg | |
| 50 55 60 | |
| Asn Leu Ala Val Leu Asp Leu Cys Phe Ser Ser Val Thr Ala Pro Lys | |
| 65 70 75 80 | |
| Met Leu Val Asp Leu Leu Ser Glu Lys Lys Thr Ile Ser Tyr Gln Gly | |
| 85 90 95 | |
| Cys Met Gly Gln Ile Phe Phe Phe His Phe Leu Gly Gly Ala Met Val | |

| | | |
|---|-----|-----|
| 100 | 105 | 110 |
| Phe Phe Leu Ser Val Met Ala Phe Asp Arg Leu Ile Ala Ile Ser Arg | | |
| 115 | 120 | 125 |
| Pro Leu Arg Tyr Val Thr Val Met Asn Thr Gln Leu Trp Val Gly Leu | | |
| 130 | 135 | 140 |
| Val Val Ala Thr Trp Val Gly Gly Phe Val His Ser Ile Val Gln Leu | | |
| 145 | 150 | 155 |
| Ala Leu Met Leu Pro Leu Pro Phe Cys Gly Pro Asn Ile Leu Asp Asn | | |
| 165 | 170 | 175 |
| Phe Tyr Cys Asp Val Pro Gln Val Leu Arg Leu Ala Cys Thr Asp Thr | | |
| 180 | 185 | 190 |
| Ser Leu Leu Glu Phe Leu Lys Ile Ser Asn Ser Gly Leu Leu Asp Val | | |
| 195 | 200 | 205 |
| Val Trp Phe Phe Leu Leu Leu Met Ser Tyr Leu Phe Ile Leu Val Met | | |
| 210 | 215 | 220 |
| Leu Arg Ser His Pro Gly Glu Ala Arg Arg Lys Ala Ala Ser Thr Cys | | |
| 225 | 230 | 235 |
| Thr Thr His Ile Ile Val Val Ser Met Ile Phe Val Pro Ser Ile Tyr | | |
| 245 | 250 | 255 |
| Leu Tyr Ala Arg Pro Phe Thr Pro Phe Pro Met Asp Lys Leu Val Ser | | |
| 260 | 265 | 270 |
| Ile Gly His Thr Val Met Thr Pro Met Leu Asn Pro Met Ile Tyr Asn | | |
| 275 | 280 | 285 |
| Leu Arg Asn Pro Asp Met Gln Ala Ala Val Arg Arg Leu Gly Arg His | | |
| 290 | 295 | 300 |
| Arg Leu Val | | |
| 305 | | |

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 <211> 897
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 <213> Homo sapiens

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 <222> (3) .. (890)

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 Pro Glu Gly Gln Lys Val Leu Phe Val Thr Phe Leu Leu Ile Tyr
 1 5 10 15

| | |
|---|-----|
| atg gtg acg ata atg ggc aac ctg ctt atc ata gtg acc atc atg gcc | 95 |
| Met Val Thr Ile Met Gly Asn Leu Leu Ile Ile Val Thr Ile Met Ala | |
| 20 25 30 | |
| agc cag tcc ctg ggt tcc ccc atg tac ttt ttt ctg gct tct tta tca | 143 |
| Ser Gln Ser Leu Gly Ser Pro Met Tyr Phe Phe Leu Ala Ser Leu Ser | |
| 35 40 45 | |
| ttc ata gat acc gtc tat tct act gca ttt gct ccc aaa atg att gtt | 191 |
| Phe Ile Asp Thr Val Tyr Ser Thr Ala Phe Ala Pro Lys Met Ile Val | |
| 50 55 60 | |
| gac ttg ctc tct gag aaa aag acc att tcc ttt cag ggt tgt atg gct | 239 |
| Asp Leu Leu Ser Glu Lys Lys Thr Ile Ser Phe Gln Gly Cys Met Ala | |
| 65 70 75 | |
| caa ctt ttt atg gat cat tta ttt gct ggt gct gaa gtc att ctt ctg | 287 |
| Gln Leu Phe Met Asp His Leu Phe Ala Gly Ala Glu Val Ile Leu Leu | |
| 80 85 90 95 | |
| gtg gta atg gcc tat gat cga tac atg gcc atc tgt aag cct ctt cat | 335 |
| Val Val Met Ala Tyr Asp Arg Tyr Met Ala Ile Cys Lys Pro Leu His | |
| 100 105 110 | |
| gaa ttg atc acc atg aat cgt cga gtc tgt gtt ctt atg ctg ttg gcg | 383 |
| Glu Leu Ile Thr Met Asn Arg Arg Val Cys Val Leu Met Leu Leu Ala | |
| 115 120 125 | |
| gcc tgg att gga ggc ttt ctt cac tca ttg gtt caa ttt ctc ttt att | 431 |
| Ala Trp Ile Gly Gly Phe Leu His Ser Leu Val Gln Phe Leu Phe Ile | |
| 130 135 140 | |
| tat cag ctc cct ttc tgt gga ccc aat gtc att gac aac ttc ctg tgt | 479 |
| Tyr Gln Leu Pro Phe Cys Gly Pro Asn Val Ile Asp Asn Phe Leu Cys | |
| 145 150 155 | |
| gat ttg tat ccc tta ttg aaa ctt gct tgc acc aat acc tat gtc act | 527 |
| Asp Leu Tyr Pro Leu Leu Lys Leu Ala Cys Thr Asn Thr Tyr Val Thr | |
| 160 165 170 175 | |
| ggg ctt tct atg ata gct aat gga gga gcg att tgt gct gtc acc ttc | 575 |
| Gly Leu Ser Met Ile Ala Asn Gly Gly Ala Ile Cys Ala Val Thr Phe | |
| 180 185 190 | |
| ttc act atc ctg ctt tcc tat ggg gcc ata tta cac tct ctt aag act | 623 |
| Phe Thr Ile Leu Leu Ser Tyr Gly Ala Ile Leu His Ser Leu Lys Thr | |
| 195 200 205 | |
| cag agt ttg gaa ggg aaa cga aaa gct ttc tac acc tgt gca tcc cac | 671 |
| Gln Ser Leu Glu Gly Lys Arg Lys Ala Phe Tyr Thr Cys Ala Ser His | |
| 210 215 220 | |
| gtc act gtg gtc att tta ttc ttt gtc ccc tgt atc ttc ttg tat gca | 719 |
| Val Thr Val Val Ile Leu Phe Phe Val Pro Cys Ile Phe Leu Tyr Ala | |
| 225 230 235 | |
| agg ccc aat tct act ttt ccc att gat aaa tcc atg act gta gtt cta | 767 |

Arg Pro Asn Ser Thr Phe Pro Ile Asp Lys Ser Met Thr Val Val Leu
 240 245 250 255
 act ttt ata act ccc atg ctg aac cca cta atc tat acc ctg aag aat 815
 Thr Phe Ile Thr Pro Met Leu Asn Pro Leu Ile Tyr Thr Leu Lys Asn
 260 265 270
 gca gaa atg aaa agt gcc atg agg aaa ctt tgg agt aaa aaa gta agc 863
 Ala Glu Met Lys Ser Ala Met Arg Lys Leu Trp Ser Lys Lys Val Ser
 275 280 285
 tta gct ggg aaa tgg ctg tat cac tca tgagaat 897
 Leu Ala Gly Lys Trp Leu Tyr His Ser
 290 295

<210> 88
 <211> 296
 <212> PRT
 <213> Homo sapiens

<400> 88
 Pro Glu Gly Gln Lys Val Leu Phe Val Thr Phe Leu Leu Ile Tyr Met
 1 5 10 15
 Val Thr Ile Met Gly Asn Leu Leu Ile Ile Val Thr Ile Met Ala Ser
 20 25 30
 Gln Ser Leu Gly Ser Pro Met Tyr Phe Phe Leu Ala Ser Leu Ser Phe
 35 40 45
 Ile Asp Thr Val Tyr Ser Thr Ala Phe Ala Pro Lys Met Ile Val Asp
 50 55 60
 Leu Leu Ser Glu Lys Lys Thr Ile Ser Phe Gln Gly Cys Met Ala Gln
 65 70 75 80
 Leu Phe Met Asp His Leu Phe Ala Gly Ala Glu Val Ile Leu Leu Val
 85 90 95
 Val Met Ala Tyr Asp Arg Tyr Met Ala Ile Cys Lys Pro Leu His Glu
 100 105 110
 Leu Ile Thr Met Asn Arg Arg Val Cys Val Leu Met Leu Leu Ala Ala
 115 120 125
 Trp Ile Gly Gly Phe Leu His Ser Leu Val Gln Phe Leu Phe Ile Tyr
 130 135 140
 Gln Leu Pro Phe Cys Gly Pro Asn Val Ile Asp Asn Phe Leu Cys Asp
 145 150 155 160
 Leu Tyr Pro Leu Leu Lys Leu Ala Cys Thr Asn Thr Tyr Val Thr Gly
 165 170 175
 Leu Ser Met Ile Ala Asn Gly Gly Ala Ile Cys Ala Val Thr Phe Phe
 180 185 190

Thr Ile Leu Leu Ser Tyr Gly Ala Ile Leu His Ser Leu Lys Thr Gln
 195 200 205
 Ser Leu Glu Gly Lys Arg Lys Ala Phe Tyr Thr Cys Ala Ser His Val
 210 215 220
 Thr Val Val Ile Leu Phe Phe Val Pro Cys Ile Phe Leu Tyr Ala Arg
 225 230 235 240
 Pro Asn Ser Thr Phe Pro Ile Asp Lys Ser Met Thr Val Val Leu Thr
 245 250 255
 Phe Ile Thr Pro Met Leu Asn Pro Leu Ile Tyr Thr Leu Lys Asn Ala
 260 265 270
 Glu Met Lys Ser Ala Met Arg Lys Leu Trp Ser Lys Lys Val Ser Leu
 275 280 285
 Ala Gly Lys Trp Leu Tyr His Ser
 290 295

<210> 89
 <211> 989
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (3) .. (947)

<400> 89
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 Lys Ile Ala Asn Asn Thr Val Val Thr Glu Phe Ile Leu Leu Gly
 1 5 10 15
 ctg act cag tct caa gat att cag ctc ttg gtc ttt gtg ctg atc tta 95
 Leu Thr Gln Ser Gln Asp Ile Gln Leu Val Phe Val Leu Ile Leu
 20 25 30
 att ttc tac ctt atc atc ctc cct gga aat ttt ctc att att ttc acc 143
 Ile Phe Tyr Leu Ile Ile Leu Pro Gly Asn Phe Leu Ile Ile Phe Thr
 35 40 45
 ata agg tca gac cct ggg ctc aca gcc ccc ctc tat tta ttt ctg ggc 191
 Ile Arg Ser Asp Pro Gly Leu Thr Ala Pro Leu Tyr Leu Phe Leu Gly
 50 55 60
 aac ttg gcc ttc ctg gat gca tcc tac tcc ttc att gtg gct ccc agg 239
 Asn Leu Ala Phe Leu Asp Ala Ser Tyr Ser Phe Ile Val Ala Pro Arg
 65 70 75
 atg ttg gtg gac ttc ctc tct gag aag aag gca atc tcc tac aga ggc 287
 Met Leu Val Asp Phe Leu Ser Glu Lys Lys Ala Ile Ser Tyr Arg Gly
 80 85 90 95

| | |
|---|-----|
| tgc atc act cag ctc ttt ttc ttg cac ttc ctt gga gga ggg gag gga | 335 |
| Cys Ile Thr Gln Leu Phe Phe Leu His Phe Leu Gly Gly Gly Glu Gly | |
| 100 105 110 | |
| tta ctc ctt gtt gtg atg gcc ttt gac cgc tac atc gcc atc tgc cgg | 383 |
| Leu Leu Leu Val Val Met Ala Phe Asp Arg Tyr Ile Ala Ile Cys Arg | |
| 115 120 125 | |
| cct ctg cac tgt tca act gtc atg aac cct aga gcc tgc tat gca atg | 431 |
| Pro Leu His Cys Ser Thr Val Met Asn Pro Arg Ala Cys Tyr Ala Met | |
| 130 135 140 | |
| atg ttg gct ctg tgg ctt ggg ggt ttt gtc cac tcc att atc cag gtg | 479 |
| Met Leu Ala Leu Trp Leu Gly Gly Phe Val His Ser Ile Ile Gln Val | |
| 145 150 155 | |
| gtc ctc atc ctc cgc ttg cct ttt tgt ggc cca aac cag ctg gac aac | 527 |
| Val Leu Ile Leu Arg Leu Pro Phe Cys Gly Pro Asn Gln Leu Asp Asn | |
| 160 165 170 175 | |
| ttc ttc tgt gat gtc cga cag gtc atc aag ctg gct tgc acc gac atg | 575 |
| Phe Phe Cys Asp Val Arg Gln Val Ile Lys Leu Ala Cys Thr Asp Met | |
| 180 185 190 | |
| ttt gtg gtg gag ctt ctg atg gtc ttc aac agt ggc ctg atg aca ctc | 623 |
| Phe Val Val Glu Leu Leu Met Val Phe Asn Ser Gly Leu Met Thr Leu | |
| 195 200 205 | |
| ctg tgc ttt ctg ggg ctt ctg gct tcc tat gca gtc atc ctc tgc cat | 671 |
| Leu Cys Phe Leu Gly Leu Leu Ala Ser Tyr Ala Val Ile Leu Cys His | |
| 210 215 220 | |
| gtt cgt agg gca gct tct gaa ggg aag aac aag gcc atg tcc aca tgc | 719 |
| Val Arg Arg Ala Ala Ser Glu Gly Lys Asn Lys Ala Met Ser Thr Cys | |
| 225 230 235 | |
| acc act cgt gtc att att ata ctt ctt atg ttt gga cct gct atc ttc | 767 |
| Thr Thr Arg Val Ile Ile Ile Leu Leu Met Phe Gly Pro Ala Ile Phe | |
| 240 245 250 255 | |
| atc tac atg tgc cct ttc agg gcc tta cca gct gac aag atg gtt tct | 815 |
| Ile Tyr Met Cys Pro Phe Arg Ala Leu Pro Ala Asp Lys Met Val Ser | |
| 260 265 270 | |
| ctc ttt cac aca gtg atc ttt cca ttg atg aat cct atg att tat acc | 863 |
| Leu Phe His Thr Val Ile Phe Pro Leu Met Asn Pro Met Ile Tyr Thr | |
| 275 280 285 | |
| ctt cgc aac cag gaa gtg aaa act tcc atg aag agg tta ttg agt cga | 911 |
| Leu Arg Asn Gln Glu Val Lys Thr Ser Met Lys Arg Leu Leu Ser Arg | |
| 290 295 300 | |
| cat gta gtc tgt caa gtg gat ttt ata ata aga aac tgagaaggag | 957 |
| His Val Val Cys Gln Val Asp Phe Ile Ile Arg Asn | |
| 305 310 315 | |

gaattctggc tggaattcat atcattcatt ta

989

<210> 90

<211> 315

<212> PRT

<213> Homo sapiens

<400> 90

Lys Ile Ala Asn Asn Thr Val Val Thr Glu Phe Ile Leu Leu Gly Leu
1 5 10 15

Thr Gln Ser Gln Asp Ile Gln Leu Leu Val Phe Val Leu Ile Leu Ile
20 25 30

Phe Tyr Leu Ile Ile Leu Pro Gly Asn Phe Leu Ile Ile Phe Thr Ile
35 40 45

Arg Ser Asp Pro Gly Leu Thr Ala Pro Leu Tyr Leu Phe Leu Gly Asn
50 55 60

Leu Ala Phe Leu Asp Ala Ser Tyr Ser Phe Ile Val Ala Pro Arg Met
65 70 75 80

Leu Val Asp Phe Leu Ser Glu Lys Lys Ala Ile Ser Tyr Arg Gly Cys
85 90 95

Ile Thr Gln Leu Phe Phe Leu His Phe Leu Gly Gly Gly Glu Gly Leu
100 105 110

Leu Leu Val Val Met Ala Phe Asp Arg Tyr Ile Ala Ile Cys Arg Pro
115 120 125

Leu His Cys Ser Thr Val Met Asn Pro Arg Ala Cys Tyr Ala Met Met
130 135 140

Leu Ala Leu Trp Leu Gly Gly Phe Val His Ser Ile Ile Gln Val Val
145 150 155 160

Leu Ile Leu Arg Leu Pro Phe Cys Gly Pro Asn Gln Leu Asp Asn Phe
165 170 175

Phe Cys Asp Val Arg Gln Val Ile Lys Leu Ala Cys Thr Asp Met Phe
180 185 190

Val Val Glu Leu Leu Met Val Phe Asn Ser Gly Leu Met Thr Leu Leu
195 200 205

Cys Phe Leu Gly Leu Leu Ala Ser Tyr Ala Val Ile Leu Cys His Val
210 215 220

Arg Arg Ala Ala Ser Glu Gly Lys Asn Lys Ala Met Ser Thr Cys Thr
225 230 235 240

Thr Arg Val Ile Ile Ile Leu Leu Met Phe Gly Pro Ala Ile Phe Ile
245 250 255

Tyr Met Cys Pro Phe Arg Ala Leu Pro Ala Asp Lys Met Val Ser Leu
 260 265 270
 Phe His Thr Val Ile Phe Pro Leu Met Asn Pro Met Ile Tyr Thr Leu
 275 280 285
 Arg Asn Gln Glu Val Lys Thr Ser Met Lys Arg Leu Leu Ser Arg His
 290 295 300
 Val Val Cys Gln Val Asp Phe Ile Ile Arg Asn
 305 310 315

<210> 91
 <211> 963
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (2)..(955)

<400> 91

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 Met Glu Gly Asn Gln Thr Trp Ile Thr Asp Ile Thr Leu Leu Gly Phe
 1 5 10 15
 cag gtt ggt cca gca ctg gcg att ctc ctc tgt gga ctc ttc tct gtc 97
 Gln Val Gly Pro Ala Leu Ala Ile Leu Leu Cys Gly Leu Phe Ser Val
 20 25 30
 ttc tat aca ctc acc ctg ctg ggg aat ggg gtc atc ttt ggg att atc 145
 Phe Tyr Thr Leu Thr Leu Leu Gly Asn Gly Val Ile Phe Gly Ile Ile
 35 40 45
 tgc ctg gac tct aag ctt cac aca ccc atg tac ttc ttc ctc tca cac 193
 Cys Leu Asp Ser Lys Leu His Thr Pro Met Tyr Phe Phe Leu Ser His
 50 55 60
 ctg gcc atc att gac atg tcc tat gct tcc aac aat gtt ccc aag atg 241
 Leu Ala Ile Ile Asp Met Ser Tyr Ala Ser Asn Asn Val Pro Lys Met
 65 70 75 80
 ttg gca aac cta atg aac cag aaa aga acc atc tcc ttt gtt cca tgc 289
 Leu Ala Asn Leu Met Asn Gln Lys Arg Thr Ile Ser Phe Val Pro Cys
 85 90 95
 ata atg cag act ttt ttg tat ttg gct ttt gct gtt aca gag tgc ctg 337
 Ile Met Gln Thr Phe Leu Tyr Leu Ala Phe Ala Val Thr Glu Cys Leu
 100 105 110
 att ttg gtg gtg atg tcc tat gat agg tat gtg gcc atc tgc cac cct 385
 Ile Leu Val Val Met Ser Tyr Asp Arg Tyr Val Ala Ile Cys His Pro
 115 120 125
 ttc cag tac act gtc atc atg agc tgg aga gtg tgc acg atc ctg gtt 433

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|-----|-----|--|
| Phe | Gln | Tyr | Thr | Val | Ile | Met | Ser | Trp | Arg | Val | Cys | Thr | Ile | Leu | Val | | |
| 130 | | | | | | 135 | | | | | 140 | | | | | | |
| ctc | acg | tcc | tgg | tca | tgt | ggg | ttt | gcc | ctg | tcc | ctg | gta | cat | gaa | att | 481 | |
| Leu | Thr | Ser | Trp | Ser | Cys | Gly | Phe | Ala | Leu | Ser | Leu | Val | His | Glu | Ile | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| ctc | ctt | cta | agg | ttg | ccc | ttc | tgt | ggg | ccc | cgg | gat | gtg | aac | cac | ctc | 529 | |
| Leu | Leu | Leu | Arg | Leu | Pro | Phe | Cys | Gly | Pro | Arg | Asp | Val | Asn | His | Leu | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| ttc | tgt | gaa | att | ctg | tct | gtc | ctc | aag | ctg | gcc | tgt | gct | gac | acc | tgg | 577 | |
| Phe | Cys | Glu | Ile | Leu | Ser | Val | Leu | Lys | Leu | Ala | Cys | Ala | Asp | Thr | Trp | | |
| | | | 180 | | | | | 185 | | | | | | 190 | | | |
| gtt | aac | caa | gtg | gtc | ata | ttt | gct | acc | tgt | gtg | ttt | gtc | tta | gtc | ggg | 625 | |
| Val | Asn | Gln | Val | Val | Ile | Phe | Ala | Thr | Cys | Val | Phe | Val | Leu | Val | Gly | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| cct | ctt | tcc | ttg | att | ctg | gtc | tcc | tac | atg | cac | atc | ctc | ggg | gcc | atc | 673 | |
| Pro | Leu | Ser | Leu | Ile | Leu | Val | Ser | Tyr | Met | His | Ile | Leu | Gly | Ala | Ile | | |
| | 210 | | | | | 215 | | | | | | 220 | | | | | |
| ctg | aag | atc | cag | aca | aag | gag | ggc | cgc | ata | aag | gcc | ttc | tcc | acc | tgc | 721 | |
| Leu | Lys | Ile | Gln | Thr | Lys | Glu | Gly | Arg | Ile | Lys | Ala | Phe | Ser | Thr | Cys | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| tcc | tcc | cac | ctg | tgt | gtg | gtt | gga | cta | ttc | ttt | ggc | ata | gcc | atg | gtg | 769 | |
| Ser | Ser | His | Leu | Cys | Val | Val | Gly | Leu | Phe | Phe | Gly | Ile | Ala | Met | Val | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| gtt | tac | atg | gtc | cca | gac | tct | aat | caa | cga | gag | gag | cag | gag | aaa | atg | 817 | |
| Val | Tyr | Met | Val | Pro | Asp | Ser | Asn | Gln | Arg | Glu | Glu | Gln | Glu | Lys | Met | | |
| | | | 260 | | | | | 265 | | | | | | 270 | | | |
| ctg | tcc | ctg | ttt | cac | agt | gtc | ttg | aac | cca | atg | ctg | aac | ccc | ctg | atc | 865 | |
| Leu | Ser | Leu | Phe | His | Ser | Val | Leu | Asn | Pro | Met | Leu | Asn | Pro | Leu | Ile | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| tac | agc | ctg | agg | aat | gct | cag | ttg | aag | ggc | gcc | ctc | cac | aga | gca | ctc | 913 | |
| Tyr | Ser | Leu | Arg | Asn | Ala | Gln | Leu | Lys | Gly | Ala | Leu | His | Arg | Ala | Leu | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| cag | agg | aag | agg | tcc | atg | aga | acg | gtg | tat | ggg | ctt | tgc | ctt | taaaacat | 963 | | |
| Gln | Arg | Lys | Arg | Ser | Met | Arg | Thr | Val | Tyr | Gly | Leu | Cys | Leu | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | | | |

<210> 92

<211> 318

<212> PRT

<213> Homo sapiens

<400> 92

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Gly | Asn | Gln | Thr | Trp | Ile | Thr | Asp | Ile | Thr | Leu | Leu | Gly | Phe |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |

<210> 93
 <211> 952
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (3) .. (932)

<400> 93
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 Met Gly Asp Asn Gln Ser Arg Val Thr Glu Phe Ile Leu Val Gly
 1 5 10 15

ttc cag ctc agt gtg gag atg gaa gtg ctc ctc ttc tgg atc ttc tcc 95
 Phe Gln Leu Ser Val Glu Met Glu Val Leu Leu Phe Trp Ile Phe Ser
 20 25 30

ctg tta tat ctc ttc agc ctg ctg gca aat ggc atg atc ttg ggg ctc 143
 Leu Leu Tyr Leu Phe Ser Leu Leu Ala Asn Gly Met Ile Leu Gly Leu
 35 40 45

atc tgt ctg gat ccc aga ctg cgc acc ccc atg tac ttc ttc ctg tca 191
 Ile Cys Leu Asp Pro Arg Leu Arg Thr Pro Met Tyr Phe Phe Leu Ser
 50 55 60

cac ttg gcc gtc att gac ata tac tat gct tcc agc aat ttg ctc aac 239
 His Leu Ala Val Ile Asp Ile Tyr Tyr Ala Ser Ser Asn Leu Leu Asn
 65 70 75

atg ctg gaa aac cta gtg aaa cac aaa aaa act atc tcg ttc atc tct 287
 Met Leu Glu Asn Leu Val Lys His Lys Lys Thr Ile Ser Phe Ile Ser
 80 85 90 95

tgc att atg cag atg gct ttg tat ttg act ttt gct gct gca gtg tgc 335
 Cys Ile Met Gln Met Ala Leu Tyr Leu Thr Phe Ala Ala Ala Val Cys
 100 105 110

atg att ttg gtg gtg atg tcc tat gac aga ttt gtg gcg atc tgc cat 383
 Met Ile Leu Val Val Met Ser Tyr Asp Arg Phe Val Ala Ile Cys His
 115 120 125

ccc ctg cat tac act gtc atc atg aac tgg aga gtg tgc aca gta ctg 431
 Pro Leu His Tyr Thr Val Ile Met Asn Trp Arg Val Cys Thr Val Leu
 130 135 140

gct att act tcc tgg gca tgt gga ttt tcc ctg gcc ctc ata aat cta 479
 Ala Ile Thr Ser Trp Ala Cys Gly Phe Ser Leu Ala Leu Ile Asn Leu
 145 150 155

att ctc ctt cta agg ctg ccc ttc tgt ggg ccc cag gag gtg aac cac 527
 Ile Leu Leu Leu Arg Leu Pro Phe Cys Gly Pro Gln Glu Val Asn His
 160 165 170 175

ttc ttc ggt gaa att ctg tct gtc ctc aaa ctg gcc tgt gca gac acc 575

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Phe | Gly | Glu | Ile | Leu | Ser | Val | Leu | Lys | Leu | Ala | Cys | Ala | Asp | Thr | |
| | | | | 180 | | | | | 185 | | | | | 190 | | |
| tgg | att | aat | gaa | att | ttt | gtc | ttt | gct | ggg | ggg | gtg | ttt | gtc | tta | gtc | 623 |
| Trp | Ile | Asn | Glu | Ile | Phe | Val | Phe | Ala | Gly | Gly | Val | Phe | Val | Leu | Val | |
| | | | 195 | | | | | 200 | | | | | 205 | | | |
| ggg | ccc | ctt | tcc | ttg | atg | ctg | atc | tcc | tac | atg | cgc | atc | ctc | ttg | gcc | 671 |
| Gly | Pro | Leu | Ser | Leu | Met | Leu | Ile | Ser | Tyr | Met | Arg | Ile | Leu | Leu | Ala | |
| | | 210 | | | | | 215 | | | | | 220 | | | | |
| atc | ctg | aag | atc | cag | tca | aag | gag | ggc | cgc | aaa | aaa | gcc | ttt | tcc | acc | 719 |
| Ile | Leu | Lys | Ile | Gln | Ser | Lys | Glu | Gly | Arg | Lys | Lys | Ala | Phe | Ser | Thr | |
| | 225 | | | | | 230 | | | | | 235 | | | | | |
| tgc | tcc | tcc | cac | ctc | tgt | gtg | gtt | ggg | ctt | tac | ttt | ggc | atg | gcc | atg | 767 |
| Cys | Ser | Ser | His | Leu | Cys | Val | Val | Gly | Leu | Tyr | Phe | Gly | Met | Ala | Met | |
| 240 | | | | | 245 | | | | | 250 | | | | | 255 | |
| gtg | gtt | tac | ctg | gtc | cca | gac | aac | agt | caa | cga | cag | aag | cag | cag | aaa | 815 |
| Val | Val | Tyr | Leu | Val | Pro | Asp | Asn | Ser | Gln | Arg | Gln | Lys | Gln | Gln | Lys | |
| | | | | 260 | | | | | 265 | | | | 270 | | | |
| att | ctc | acc | ctg | ttt | tac | agc | ctt | ttc | aac | cca | ttg | ctg | aac | ccc | ctc | 863 |
| Ile | Leu | Thr | Leu | Phe | Tyr | Ser | Leu | Phe | Asn | Pro | Leu | Leu | Asn | Pro | Leu | |
| | | | 275 | | | | | 280 | | | | | 285 | | | |
| atc | tac | agc | ctg | cgg | aat | gct | caa | gtg | aag | ggg | gcc | tta | tac | aga | gca | 911 |
| Ile | Tyr | Ser | Leu | Arg | Asn | Ala | Gln | Val | Lys | Gly | Ala | Leu | Tyr | Arg | Ala | |
| | | 290 | | | | 295 | | | | | 300 | | | | | |
| ctg | cag | aaa | aag | agg | acc | atg | tgaatgagggg | gagaattttg | | | | | | | | 952 |
| Leu | Gln | Lys | Lys | Arg | Thr | Met | | | | | | | | | | |
| | 305 | | | | | 310 | | | | | | | | | | |

<210> 94
 <211> 310
 <212> PRT
 <213> Homo sapiens

<400> 94
 Met Gly Asp Asn Gln Ser Arg Val Thr Glu Phe Ile Leu Val Gly Phe
 1 5 10 15
 Gln Leu Ser Val Glu Met Glu Val Leu Leu Phe Trp Ile Phe Ser Leu
 20 25 30
 Leu Tyr Leu Phe Ser Leu Leu Ala Asn Gly Met Ile Leu Gly Leu Ile
 35 40 45
 Cys Leu Asp Pro Arg Leu Arg Thr Pro Met Tyr Phe Phe Leu Ser His
 50 55 60
 Leu Ala Val Ile Asp Ile Tyr Tyr Ala Ser Ser Asn Leu Leu Asn Met
 65 70 75 80

| | |
|---|-----|
| tgatgtatgc tccatggagc ggggtcaatga gac tgt ggt gag aga ggt cat ctt | 54 |
| Asp Cys Gly Glu Arg Gly His Leu | |
| 1 5 | |
| cct cgg ctt tca tcc ctg gcc agg ctg cag cag ctg ctc ttt gtt atc | 102 |
| Pro Arg Leu Ser Ser Leu Ala Arg Leu Gln Gln Leu Leu Phe Val Ile | |
| 10 15 20 | |
| ttc ctg ctc ctc tac ctg ttc act ctg ggc acc aat gca atc atc att | 150 |
| Phe Leu Leu Leu Tyr Leu Phe Thr Leu Gly Thr Asn Ala Ile Ile Ile | |
| 25 30 35 40 | |
| tcc acc att gtc ctg gac agg gcc ctt cat atc ccc atg tac ttc ttc | 198 |
| Ser Thr Ile Val Leu Asp Arg Ala Leu His Ile Pro Met Tyr Phe Phe | |
| 45 50 55 | |
| ctt gcc atc ctc tct tgc tct gag att tgc tac acc ttc atc att gta | 246 |
| Leu Ala Ile Leu Ser Cys Ser Glu Ile Cys Tyr Thr Phe Ile Ile Val | |
| 60 65 70 | |
| ccc aag atg ctg gtt gac ctg ctg tcc cag aag aag acc att tct ttc | 294 |
| Pro Lys Met Leu Val Asp Leu Leu Ser Gln Lys Lys Thr Ile Ser Phe | |
| 75 80 85 | |
| ctg ggc tgt gcc atc caa atg ttt tcc ttc ctc ttc ctt ggc tgc tct | 342 |
| Leu Gly Cys Ala Ile Gln Met Phe Ser Phe Leu Phe Leu Gly Cys Ser | |
| 90 95 100 | |
| cac tcc ttt ctg ctg gca gtc atg ggt tat gat cgt tac ata gcc atc | 390 |
| His Ser Phe Leu Leu Ala Val Met Gly Tyr Asp Arg Tyr Ile Ala Ile | |
| 105 110 115 120 | |
| tgt aac cca ctg cgc tac tca gtg cta atg gga cat ggg gtg tgt atg | 438 |
| Cys Asn Pro Leu Arg Tyr Ser Val Leu Met Gly His Gly Val Cys Met | |
| 125 130 135 | |
| gga cta gtg gct gct gcc tgt gcc tgt ggc ttc act gtt gca cag atc | 486 |
| Gly Leu Val Ala Ala Ala Cys Ala Cys Gly Phe Thr Val Ala Gln Ile | |
| 140 145 150 | |
| atc aca tcc ttg gta ttt cac ctg cct ttt tat tcc tcc aat caa cta | 534 |
| Ile Thr Ser Leu Val Phe His Leu Pro Phe Tyr Ser Ser Asn Gln Leu | |
| 155 160 165 | |
| cat cac ttc ttc tgt gac att gct cct gtc ctc aag ctg gca tct cac | 582 |
| His His Phe Phe Cys Asp Ile Ala Pro Val Leu Lys Leu Ala Ser His | |
| 170 175 180 | |
| cat aac cac ttt agt cag att gtc atc ttc atg ctc tgt aca ttg gtc | 630 |
| His Asn His Phe Ser Gln Ile Val Ile Phe Met Leu Cys Thr Leu Val | |
| 185 190 195 200 | |
| ctg gct atc ccc tta ttg ttg atc ttg gtg tcc tat gtt cac atc ctc | 678 |
| Leu Ala Ile Pro Leu Leu Leu Ile Leu Val Ser Tyr Val His Ile Leu | |
| 205 210 215 | |
| tct gcc ata ctt cag ttt cct tcc aca ctg ggt agg tgc aaa gct ttt | 726 |

Ser Ala Ile Leu Gln Phe Pro Ser Thr Leu Gly Arg Cys Lys Ala Phe
 220 225 230
 tct acc tgt gta tct cac ctc att att gtc act gtc cac tat ggc tgt 774
 Ser Thr Cys Val Ser His Leu Ile Ile Val Thr Val His Tyr Gly Cys
 235 240 245
 gcc tcc ttt atc tac tta agg cct cag tcc aac tac tcc tca agc cag 822
 Ala Ser Phe Ile Tyr Leu Arg Pro Gln Ser Asn Tyr Ser Ser Ser Gln
 250 255 260
 gat gct cta ata tca gta tcc tac act att ata act cca ttg ttc aac 870
 Asp Ala Leu Ile Ser Val Ser Tyr Thr Ile Ile Thr Pro Leu Phe Asn
 265 270 275 280
 cca atg att tat agc ttg aga aat aaa gag ttc aaa tca gct ctt tgt 918
 Pro Met Ile Tyr Ser Leu Arg Asn Lys Glu Phe Lys Ser Ala Leu Cys
 285 290 295
 aaa att gtg aga aga aca att tcc ctg ttg taaaattaat cttgattctg 968
 Lys Ile Val Arg Arg Thr Ile Ser Leu Leu
 300 305
 gccag 973

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 <212> PRT
 <213> Homo sapiens

<400> 96
 Asp Cys Gly Glu Arg Gly His Leu Pro Arg Leu Ser Ser Leu Ala Arg
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 Leu Gly Thr Asn Ala Ile Ile Ile Ser Thr Ile Val Leu Asp Arg Ala
 35 40 45
 Leu His Ile Pro Met Tyr Phe Phe Leu Ala Ile Leu Ser Cys Ser Glu
 50 55 60
 Ile Cys Tyr Thr Phe Ile Ile Val Pro Lys Met Leu Val Asp Leu Leu
 65 70 75 80
 Ser Gln Lys Lys Thr Ile Ser Phe Leu Gly Cys Ala Ile Gln Met Phe
 85 90 95
 Ser Phe Leu Phe Leu Gly Cys Ser His Ser Phe Leu Leu Ala Val Met
 100 105 110
 Gly Tyr Asp Arg Tyr Ile Ala Ile Cys Asn Pro Leu Arg Tyr Ser Val
 115 120 125
 Leu Met Gly His Gly Val Cys Met Gly Leu Val Ala Ala Ala Cys Ala

| 130 | 135 | 140 |
|---------------------|---------------------|---------------------------------|
| Cys Gly Phe Thr Val | Ala Gln Ile Ile Thr | Ser Leu Val Phe His Leu |
| 145 | 150 | 155 160 |
| Pro Phe Tyr Ser Ser | Asn Gln Leu His His | Phe Phe Cys Asp Ile Ala |
| | 165 | 170 175 |
| Pro Val Leu Lys Leu | Ala Ser His His | Asn His Phe Ser Gln Ile Val |
| | 180 | 185 190 |
| Ile Phe Met Leu Cys | Thr Leu Val Leu | Ala Ile Pro Leu Leu Ile |
| | 195 | 200 205 |
| Leu Val Ser Tyr Val | His Ile Leu Ser | Ala Ile Leu Gln Phe Pro Ser |
| | 210 | 215 220 |
| Thr Leu Gly Arg Cys | Lys Ala Phe Ser | Thr Cys Val Ser His Leu Ile |
| | 225 | 230 235 240 |
| Ile Val Thr Val | His Tyr Gly Cys | Ala Ser Phe Ile Tyr Leu Arg Pro |
| | 245 | 250 255 |
| Gln Ser Asn Tyr Ser | Ser Ser Gln Asp | Ala Leu Ile Ser Val Ser Tyr |
| | 260 | 265 270 |
| Thr Ile Ile Thr | Pro Leu Phe Asn | Pro Met Ile Tyr Ser Leu Arg Asn |
| | 275 | 280 285 |
| Lys Glu Phe Lys Ser | Ala Leu Cys Lys | Ile Val Arg Arg Thr Ile Ser |
| | 290 | 295 300 |

Leu Leu
305

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 <213> Homo sapiens

<220>
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 <222> (37)..(972)

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| | Met Glu Arg Val Asn Glu |
| | 1 5 |
| act gtg gtg aga gag gtc atc ttc ctc ggc ttc tca tcc ctg gcc agg | 102 |
| Thr Val Val Arg Glu Val Ile Phe Leu Gly Phe Ser Ser Leu Ala Arg | |
| | 10 15 20 |
| ctg cag cag ctg ctc ttt gtt atc ttc ctg ctc ctc tac ctg ttc act | 150 |
| Leu Gln Gln Leu Leu Phe Val Ile Phe Leu Leu Leu Tyr Leu Phe Thr | |

| 25 | | | | | 30 | | | | | 35 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ctg | ggc | acc | aat | gca | atc | atc | att | tcc | acc | att | gtc | ctg | gac | agg | gcc | 198 |
| Leu | Gly | Thr | Asn | Ala | Ile | Ile | Ile | Ser | Thr | Ile | Val | Leu | Asp | Arg | Ala | |
| 40 | | | | 45 | | | | 50 | | | | | | | | |
| ctt | cat | atc | ccc | atg | tac | ttc | ttc | ctt | gcc | atc | ctc | tct | tgc | tct | gag | 246 |
| Leu | His | Ile | Pro | Met | Tyr | Phe | Phe | Leu | Ala | Ile | Leu | Ser | Cys | Ser | Glu | |
| 55 | | | | 60 | | | | 65 | | | | | | 70 | | |
| att | tgc | tac | acc | ttc | atc | att | gta | ccc | aag | atg | ctg | gtt | gac | ctg | ctg | 294 |
| Ile | Cys | Tyr | Thr | Phe | Ile | Ile | Val | Pro | Lys | Met | Leu | Val | Asp | Leu | Leu | |
| | | | | 75 | | | | 80 | | | | | | 85 | | |
| tcc | cag | aag | aag | acc | att | tct | ttc | ctg | ggc | tgt | gcc | atc | caa | atg | ttt | 342 |
| Ser | Gln | Lys | Lys | Thr | Ile | Ser | Phe | Leu | Gly | Cys | Ala | Ile | Gln | Met | Phe | |
| | | 90 | | | | | | 95 | | | | | | 100 | | |
| tcc | ttc | ctc | ttc | ctt | ggc | tgc | tct | cac | tcc | ttt | ctg | ctg | gca | gtc | atg | 390 |
| Ser | Phe | Leu | Phe | Leu | Gly | Cys | Ser | His | Ser | Phe | Leu | Leu | Ala | Val | Met | |
| 105 | | | | | | 110 | | | | | | 115 | | | | |
| ggt | tat | gat | cgt | tac | ata | gcc | atc | tgt | aac | cca | ctg | cgc | tac | tca | gtg | 438 |
| Gly | Tyr | Asp | Arg | Tyr | Ile | Ala | Ile | Cys | Asn | Pro | Leu | Arg | Tyr | Ser | Val | |
| 120 | | | | | | 125 | | | | | | 130 | | | | |
| cta | atg | gga | cat | ggg | gtg | tgt | atg | gga | cta | gtg | gct | gct | gcc | tgt | gcc | 486 |
| Leu | Met | Gly | His | Gly | Val | Cys | Met | Gly | Leu | Val | Ala | Ala | Ala | Cys | Ala | |
| 135 | | | | 140 | | | | | | 145 | | | | 150 | | |
| tgt | ggc | ttc | act | gtt | gca | cag | atc | atc | aca | tcc | ttg | gta | ttt | cac | ctg | 534 |
| Cys | Gly | Phe | Thr | Val | Ala | Gln | Ile | Ile | Thr | Ser | Leu | Val | Phe | His | Leu | |
| | | | | 155 | | | | 160 | | | | | | 165 | | |
| cct | ttt | tat | tcc | tcc | aat | caa | cta | cat | cac | ttc | ttc | tgt | gac | att | gct | 582 |
| Pro | Phe | Tyr | Ser | Ser | Asn | Gln | Leu | His | His | Phe | Phe | Cys | Asp | Ile | Ala | |
| | | 170 | | | | | | 175 | | | | | | 180 | | |
| cct | gtc | ctc | aag | ctg | gca | tct | cac | cat | aac | cac | ttt | agt | cag | att | gtc | 630 |
| Pro | Val | Leu | Lys | Leu | Ala | Ser | His | His | Asn | His | Phe | Ser | Gln | Ile | Val | |
| 185 | | | | | | 190 | | | | | | 195 | | | | |
| atc | ttc | atg | ctc | tgt | aca | ttg | gtc | ctg | gct | atc | ccc | tta | ttg | ttg | atc | 678 |
| Ile | Phe | Met | Leu | Cys | Thr | Leu | Val | Leu | Ala | Ile | Pro | Leu | Leu | Leu | Ile | |
| 200 | | | | | | 205 | | | | 210 | | | | | | |
| ttg | gtg | tcc | tat | gtt | cac | atc | ctc | tct | gcc | ata | ctt | cag | ttt | cct | tcc | 726 |
| Leu | Val | Ser | Tyr | Val | His | Ile | Leu | Ser | Ala | Ile | Leu | Gln | Phe | Pro | Ser | |
| 215 | | | | 220 | | | | | | 225 | | | | 230 | | |
| aca | ctg | ggt | agg | tgc | aaa | gct | ttt | tct | acc | tgt | gta | tct | cac | ctc | att | 774 |
| Thr | Leu | Gly | Arg | Cys | Lys | Ala | Phe | Ser | Thr | Cys | Val | Ser | His | Leu | Ile | |
| | | 235 | | | | 240 | | | | | | 245 | | | | |
| att | gtc | act | gtc | cac | tat | ggc | tgt | gcc | tcc | ttt | atc | tac | tta | agg | cct | 822 |
| Ile | Val | Thr | Val | His | Tyr | Gly | Cys | Ala | Ser | Phe | Ile | Tyr | Leu | Arg | Pro | |
| | | 250 | | | | 255 | | | | | | 260 | | | | |

cag tcc aac tac tcc tca agc cag gat gct cta ata tca gta tcc tac 870
 Gln Ser Asn Tyr Ser Ser Ser Gln Asp Ala Leu Ile Ser Val Ser Tyr
 265 270 275
 act att ata act cca ttg ttc aac cca atg att tat agc ttg aga aat 918
 Thr Ile Ile Thr Pro Leu Phe Asn Pro Met Ile Tyr Ser Leu Arg Asn
 280 285 290
 aaa gag ttc aaa tca gct ctt tgt aaa att gtg aga aga aca att tcc 966
 Lys Glu Phe Lys Ser Ala Leu Cys Lys Ile Val Arg Arg Thr Ile Ser
 295 300 305 310
 ctg ttg taaaattaat cttgattctg gccag 997
 Leu Leu

<210> 98
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 <212> PRT
 <213> Homo sapiens

<400> 98
 Met Glu Arg Val Asn Glu Thr Val Val Arg Glu Val Ile Phe Leu Gly
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 Leu Leu Tyr Leu Phe Thr Leu Gly Thr Asn Ala Ile Ile Ile Ser Thr
 35 40 45
 Ile Val Leu Asp Arg Ala Leu His Ile Pro Met Tyr Phe Phe Leu Ala
 50 55 60
 Ile Leu Ser Cys Ser Glu Ile Cys Tyr Thr Phe Ile Ile Val Pro Lys
 65 70 75 80
 Met Leu Val Asp Leu Leu Ser Gln Lys Lys Thr Ile Ser Phe Leu Gly
 85 90 95
 Cys Ala Ile Gln Met Phe Ser Phe Leu Phe Leu Gly Cys Ser His Ser
 100 105 110
 Phe Leu Leu Ala Val Met Gly Tyr Asp Arg Tyr Ile Ala Ile Cys Asn
 115 120 125
 Pro Leu Arg Tyr Ser Val Leu Met Gly His Gly Val Cys Met Gly Leu
 130 135 140
 Val Ala Ala Ala Cys Ala Cys Gly Phe Thr Val Ala Gln Ile Ile Thr
 145 150 155 160
 Ser Leu Val Phe His Leu Pro Phe Tyr Ser Ser Asn Gln Leu His His
 165 170 175
 Phe Phe Cys Asp Ile Ala Pro Val Leu Lys Leu Ala Ser His His Asn

| | |
|---|-----|
| ctt ggc att ctc tca aca tct gag acc ttc tac acc ttt gtc att cta | 294 |
| Leu Gly Ile Leu Ser Thr Ser Glu Thr Phe Tyr Thr Phe Val Ile Leu | |
| 75 80 85 | |
| ccc aag atg ctc atc aat cta ctt tct gtg gcc agg aca atc tcc ttc | 342 |
| Pro Lys Met Leu Ile Asn Leu Leu Ser Val Ala Arg Thr Ile Ser Phe | |
| 90 95 100 | |
| aac tgt tgt gct ctt caa atg ttc ttc ttc ctt ggt ttt gcc att acc | 390 |
| Asn Cys Cys Ala Leu Gln Met Phe Phe Phe Leu Gly Phe Ala Ile Thr | |
| 105 110 115 | |
| aac tgc ctg cta ttg ggt gtg atg ggt tat gat cgc tat gct gcc att | 438 |
| Asn Cys Leu Leu Leu Gly Val Met Gly Tyr Asp Arg Tyr Ala Ala Ile | |
| 120 125 130 135 | |
| tgt cac cct ctg cat tac ccc act ctt atg agc tgg cag gtg tgt gga | 486 |
| Cys His Pro Leu His Tyr Pro Thr Leu Met Ser Trp Gln Val Cys Gly | |
| 140 145 150 | |
| aaa ctg gca gct gcc tgt gca att ggt ggc ttc ttg gcc tct ctt aca | 534 |
| Lys Leu Ala Ala Ala Cys Ala Ile Gly Gly Phe Leu Ala Ser Leu Thr | |
| 155 160 165 | |
| gta gta aat tta gtt ttc agc ctc cct ttt tgt agc gcc aac aaa gtc | 582 |
| Val Val Asn Leu Val Phe Ser Leu Pro Phe Cys Ser Ala Asn Lys Val | |
| 170 175 180 | |
| aat cat tac ttc tgt gac atc tca gca gtc att ctt ctg gct tgt acc | 630 |
| Asn His Tyr Phe Cys Asp Ile Ser Ala Val Ile Leu Leu Ala Cys Thr | |
| 185 190 195 | |
| aac aca gat gtt aac gaa ttt gtg ata ttc att tgt gga gtt ctt gta | 678 |
| Asn Thr Asp Val Asn Glu Phe Val Ile Phe Ile Cys Gly Val Leu Val | |
| 200 205 210 215 | |
| ctt gtg gtt ccc ttt ctg ttt atc tgt gtt tct tat ctc tgc att ctg | 726 |
| Leu Val Val Pro Phe Leu Phe Ile Cys Val Ser Tyr Leu Cys Ile Leu | |
| 220 225 230 | |
| agg act atc ctg aag att ccc tca gct gag ggc aga cgg aaa gcg ttt | 774 |
| Arg Thr Ile Leu Lys Ile Pro Ser Ala Glu Gly Arg Arg Lys Ala Phe | |
| 235 240 245 | |
| tcc acc tgc gcc tct cac ctc agt gtt gtt att gtt cat tat ggc tgt | 822 |
| Ser Thr Cys Ala Ser His Leu Ser Val Val Ile Val His Tyr Gly Cys | |
| 250 255 260 | |
| gct tcc ttc atc tac ctg agg cct aca gca aac tat gtg tcc aac aaa | 870 |
| Ala Ser Phe Ile Tyr Leu Arg Pro Thr Ala Asn Tyr Val Ser Asn Lys | |
| 265 270 275 | |
| gac agg ctg gtg acg gtg aca tac acg att gtc act cca tta cta aac | 918 |
| Asp Arg Leu Val Thr Val Thr Tyr Thr Ile Val Thr Pro Leu Leu Asn | |
| 280 285 290 295 | |

ccc atg gtt tat agc ctc aga aac aag gat gtc caa ctt gct atc aga 966
Pro Met Val Tyr Ser Leu Arg Asn Lys Asp Val Gln Leu Ala Ile Arg
300 305 310

aaa gtg ttg ggc aag aaa ggt tct cta aaa cta tat aat tgaaatatta 1015
Lys Val Leu Gly Lys Lys Gly Ser Leu Lys Leu Tyr Asn
315 320

ttacatttta g 1026

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<211> 324
<212> PRT
<213> Homo sapiens

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Met Val Thr Glu Phe Leu Leu Leu Gly Phe Ser Ser Leu Gly Glu Ile
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Gln Leu Ala Leu Phe Val Val Phe Leu Phe Leu Tyr Leu Val Ile Leu
35 40 45
Ser Gly Asn Val Thr Ile Ile Ser Val Ile His Leu Asp Lys Ser Leu
50 55 60
His Thr Pro Met Tyr Phe Phe Leu Gly Ile Leu Ser Thr Ser Glu Thr
65 70 75 80
Phe Tyr Thr Phe Val Ile Leu Pro Lys Met Leu Ile Asn Leu Leu Ser
85 90 95
Val Ala Arg Thr Ile Ser Phe Asn Cys Cys Ala Leu Gln Met Phe Phe
100 105 110
Phe Leu Gly Phe Ala Ile Thr Asn Cys Leu Leu Leu Gly Val Met Gly
115 120 125
Tyr Asp Arg Tyr Ala Ala Ile Cys His Pro Leu His Tyr Pro Thr Leu
130 135 140
Met Ser Trp Gln Val Cys Gly Lys Leu Ala Ala Ala Cys Ala Ile Gly
145 150 155 160
Gly Phe Leu Ala Ser Leu Thr Val Val Asn Leu Val Phe Ser Leu Pro
165 170 175
Phe Cys Ser Ala Asn Lys Val Asn His Tyr Phe Cys Asp Ile Ser Ala
180 185 190
Val Ile Leu Leu Ala Cys Thr Asn Thr Asp Val Asn Glu Phe Val Ile
195 200 205
Phe Ile Cys Gly Val Leu Val Leu Val Val Pro Phe Leu Phe Ile Cys

| | | |
|---|-----|---------|
| 210 | 215 | 220 |
| Val Ser Tyr Leu Cys Ile Leu Arg Thr Ile Leu Lys Ile Pro Ser Ala | | |
| 225 | 230 | 235 240 |
| Glu Gly Arg Arg Lys Ala Phe Ser Thr Cys Ala Ser His Leu Ser Val | | |
| | 245 | 250 255 |
| Val Ile Val His Tyr Gly Cys Ala Ser Phe Ile Tyr Leu Arg Pro Thr | | |
| | 260 | 265 270 |
| Ala Asn Tyr Val Ser Asn Lys Asp Arg Leu Val Thr Val Thr Tyr Thr | | |
| | 275 | 280 285 |
| Ile Val Thr Pro Leu Leu Asn Pro Met Val Tyr Ser Leu Arg Asn Lys | | |
| | 290 | 295 300 |
| Asp Val Gln Leu Ala Ile Arg Lys Val Leu Gly Lys Lys Gly Ser Leu | | |
| 305 | 310 | 315 320 |
| Lys Leu Tyr Asn | | |

<210> 101
 <211> 968
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (5) .. (964)

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 Met Pro Ser Ala Ser Ala Met Ile Ile Phe Asn Leu Ser Ser Tyr
 1 5 10 15

aat cca gga ccc ttc att ctg gta ggg atc cca ggc ctg gag caa ttc 97
 Asn Pro Gly Pro Phe Ile Leu Val Gly Ile Pro Gly Leu Glu Gln Phe
 20 25 30

cat gtg tgg att gga att ccc ttc tgt atc atc tac att gta gct att 145
 His Val Trp Ile Gly Ile Pro Phe Cys Ile Ile Tyr Ile Val Ala Ile
 35 40 45

gtg gga aac tgc atc ctt ctc tac ctc att gtg gtg gag cat agt ctt 193
 Val Gly Asn Cys Ile Leu Leu Tyr Leu Ile Val Val Glu His Ser Leu
 50 55 60

cat gaa ccc atg ttc ttc ttt ctc tcc atg ctg gcc atg act gac ctc 241
 His Glu Pro Met Phe Phe Phe Leu Ser Met Leu Ala Met Thr Asp Leu
 65 70 75

atc ttg tcc aca gct ggt gtg cct aaa gca ctc agt atc ttt tgg cta 289
 Ile Leu Ser Thr Ala Gly Val Pro Lys Ala Leu Ser Ile Phe Trp Leu

| 80 | 85 | 90 | 95 | |
|---|-----|-----|-----|-----|
| ggg gct cgc gaa atc aca ttc cca gga tgc ctt aca caa atg ttc ttc | | | | 337 |
| Gly Ala Arg Glu Ile Thr Phe Pro Gly Cys Leu Thr Gln Met Phe Phe | | | | |
| | 100 | 105 | 110 | |
| ctt cac tat aac ttt gtc ctg gat tca gcc att ctg atg gcc atg gca | | | | 385 |
| Leu His Tyr Asn Phe Val Leu Asp Ser Ala Ile Leu Met Ala Met Ala | | | | |
| | 115 | 120 | 125 | |
| ttt gat cac tat gta gct atc tgt tct ccc ttg aga tat acc acc atc | | | | 433 |
| Phe Asp His Tyr Val Ala Ile Cys Ser Pro Leu Arg Tyr Thr Thr Ile | | | | |
| | 130 | 135 | 140 | |
| ttg act ccc aag acc atc atc aag agt gct atg ggc atc tcc ttt cga | | | | 481 |
| Leu Thr Pro Lys Thr Ile Ile Lys Ser Ala Met Gly Ile Ser Phe Arg | | | | |
| | 145 | 150 | 155 | |
| agc ttc tgc atc atc ctg cca gat gta ttc ttg ctg aca tgc ctg cct | | | | 529 |
| Ser Phe Cys Ile Ile Leu Pro Asp Val Phe Leu Leu Thr Cys Leu Pro | | | | |
| | 160 | 165 | 170 | 175 |
| ttc tgc agg aca cgc atc ata ccc cac aca tac tgt gag cat ata ggt | | | | 577 |
| Phe Cys Arg Thr Arg Ile Ile Pro His Thr Tyr Cys Glu His Ile Gly | | | | |
| | 180 | 185 | 190 | |
| gtt gcc cag ctc gcc tgt gct gat atc tcc atc aac ttc tgg tat ggc | | | | 625 |
| Val Ala Gln Leu Ala Cys Ala Asp Ile Ser Ile Asn Phe Trp Tyr Gly | | | | |
| | 195 | 200 | 205 | |
| ttt tgt gtt ccc atc atg acg gtc atc tca gat gtg att ctc att gct | | | | 673 |
| Phe Cys Val Pro Ile Met Thr Val Ile Ser Asp Val Ile Leu Ile Ala | | | | |
| | 210 | 215 | 220 | |
| gtt tcc tac gca cac atc ctc tgt gct gtc ttt ggc ctt ccc tcc caa | | | | 721 |
| Val Ser Tyr Ala His Ile Leu Cys Ala Val Phe Gly Leu Pro Ser Gln | | | | |
| | 225 | 230 | 235 | |
| gat gcc tgc cag aaa gcc ctc ggc act tgt ggt tct cat gtc tgt gtc | | | | 769 |
| Asp Ala Cys Gln Lys Ala Leu Gly Thr Cys Gly Ser His Val Cys Val | | | | |
| | 240 | 245 | 250 | 255 |
| atc ctc atg ttt tat aca cct gcc ttt ttc tcc atc ctc gcc cat cgc | | | | 817 |
| Ile Leu Met Phe Tyr Thr Pro Ala Phe Phe Ser Ile Leu Ala His Arg | | | | |
| | 260 | 265 | 270 | |
| ttt gga cac aat gtc tct cgc acc ttc cac atc atg ttt gcc aat ctc | | | | 865 |
| Phe Gly His Asn Val Ser Arg Thr Phe His Ile Met Phe Ala Asn Leu | | | | |
| | 275 | 280 | 285 | |
| tac att gtt atc cca cct gca ctc aac ccc atg gtt tac gga gtg aag | | | | 913 |
| Tyr Ile Val Ile Pro Pro Ala Leu Asn Pro Met Val Tyr Gly Val Lys | | | | |
| | 290 | 295 | 300 | |
| acc aag cag atc aga gat aag gtt ata ctt ttg ttt tct aag ggt aca | | | | 961 |
| Thr Lys Gln Ile Arg Asp Lys Val Ile Leu Leu Phe Ser Lys Gly Thr | | | | |
| | 305 | 310 | 315 | |

gga tgat
Gly
320

968

<210> 102
<211> 320
<212> PRT
<213> Homo sapiens

<400> 102

Met Pro Ser Ala Ser Ala Met Ile Ile Phe Asn Leu Ser Ser Tyr Asn
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Pro Gly Pro Phe Ile Leu Val Gly Ile Pro Gly Leu Glu Gln Phe His
20 25 30

Val Trp Ile Gly Ile Pro Phe Cys Ile Ile Tyr Ile Val Ala Ile Val
35 40 45

Gly Asn Cys Ile Leu Leu Tyr Leu Ile Val Val Glu His Ser Leu His
50 55 60

Glu Pro Met Phe Phe Phe Leu Ser Met Leu Ala Met Thr Asp Leu Ile
65 70 75 80

Leu Ser Thr Ala Gly Val Pro Lys Ala Leu Ser Ile Phe Trp Leu Gly
85 90 95

Ala Arg Glu Ile Thr Phe Pro Gly Cys Leu Thr Gln Met Phe Phe Leu
100 105 110

His Tyr Asn Phe Val Leu Asp Ser Ala Ile Leu Met Ala Met Ala Phe
115 120 125

Asp His Tyr Val Ala Ile Cys Ser Pro Leu Arg Tyr Thr Thr Ile Leu
130 135 140

Thr Pro Lys Thr Ile Ile Lys Ser Ala Met Gly Ile Ser Phe Arg Ser
145 150 155 160

Phe Cys Ile Ile Leu Pro Asp Val Phe Leu Leu Thr Cys Leu Pro Phe
165 170 175

Cys Arg Thr Arg Ile Ile Pro His Thr Tyr Cys Glu His Ile Gly Val
180 185 190

Ala Gln Leu Ala Cys Ala Asp Ile Ser Ile Asn Phe Trp Tyr Gly Phe
195 200 205

Cys Val Pro Ile Met Thr Val Ile Ser Asp Val Ile Leu Ile Ala Val
210 215 220

Ser Tyr Ala His Ile Leu Cys Ala Val Phe Gly Leu Pro Ser Gln Asp
225 230 235 240

Ala Cys Gln Lys Ala Leu Gly Thr Cys Gly Ser His Val Cys Val Ile
245 250 255

Leu Met Phe Tyr Thr Pro Ala Phe Phe Ser Ile Leu Ala His Arg Phe
260 265 270

Gly His Asn Val Ser Arg Thr Phe His Ile Met Phe Ala Asn Leu Tyr
275 280 285

Ile Val Ile Pro Pro Ala Leu Asn Pro Met Val Tyr Gly Val Lys Thr
290 295 300

Lys Gln Ile Arg Asp Lys Val Ile Leu Leu Phe Ser Lys Gly Thr Gly
305 310 315 320

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Met Val Thr Glu Phe Ile Phe Leu Gly
1 5

ctc tct gat tct cag gaa ctc cag acc ttc cta ttt atg ttg ttt ttt 102
Leu Ser Asp Ser Gln Glu Leu Gln Thr Phe Leu Phe Met Leu Phe Phe
10 15 20 25

gta ttc tat gga gga atc gtg ttt gga aac ctt ctt att gtc ata aca 150
Val Phe Tyr Gly Gly Ile Val Phe Gly Asn Leu Leu Ile Val Ile Thr
30 35 40

gtg gta tct gac tcc cac ctt cac tct ccc atg tac tcc ctg cta gcc 198
Val Val Ser Asp Ser His Leu His Ser Pro Met Tyr Ser Leu Leu Ala
45 50 55

aac ctc tca ctc att gat ctg tct ctg tct tca gtc aca gcc ccc aag 246
Asn Leu Ser Leu Ile Asp Leu Ser Leu Ser Ser Val Thr Ala Pro Lys
60 65 70

atg att act gac ttt ttc agc cag cgc aaa gtc atc tct ttc aag ggc 294
Met Ile Thr Asp Phe Phe Ser Gln Arg Lys Val Ile Ser Phe Lys Gly
75 80 85

tgc ctt gtt cag ata ttt ctc ctt cac ttc ttt ggt ggg ggt gag atg 342
Cys Leu Val Gln Ile Phe Leu Leu His Phe Phe Gly Gly Gly Glu Met
90 95 100 105

gtg atc ctc ata gcc atg ggc ttt gac aga tat ata gca ata tgc aag 390
Val Ile Leu Ile Ala Met Gly Phe Asp Arg Tyr Ile Ala Ile Cys Lys

| 110 | | | | | | | | | | 115 | | | | | 120 | | | | | |
|------------|------------|-----------|-----|-----|-----|-----|-----|------------|------------|------------|-----|-----|-----|-----|-----|------|--|--|--|--|
| ccc | cta | cac | tac | act | aca | att | atg | tgt | ggc | aac | gca | tgt | gtc | ggc | att | 438 | | | | |
| Pro | Leu | His | Tyr | Thr | Thr | Ile | Met | Cys | Gly | Asn | Ala | Cys | Val | Gly | Ile | | | | | |
| | | | 125 | | | | | | 130 | | | | | 135 | | | | | | |
| atg | gct | gtc | gca | tgg | gga | att | ggc | ttt | ctc | cat | tcg | gtg | agc | cag | ttg | 486 | | | | |
| Met | Ala | Val | Ala | Trp | Gly | Ile | Gly | Phe | Leu | His | Ser | Val | Ser | Gln | Leu | | | | | |
| | | 140 | | | | | 145 | | | | | 150 | | | | | | | | |
| gcc | ttt | gcc | gtg | cac | tta | ctc | ttc | tgt | ggg | ccc | aac | gag | gtc | gat | agt | 534 | | | | |
| Ala | Phe | Ala | Val | His | Leu | Leu | Phe | Cys | Gly | Pro | Asn | Glu | Val | Asp | Ser | | | | | |
| | 155 | | | | | 160 | | | | | 165 | | | | | | | | | |
| ttt | tat | tgt | gac | ctt | cct | agg | gta | atc | aaa | ctt | gcc | tgt | aca | gat | acc | 582 | | | | |
| Phe | Tyr | Cys | Asp | Leu | Pro | Arg | Val | Ile | Lys | Leu | Ala | Cys | Thr | Asp | Thr | | | | | |
| 170 | | | | | 175 | | | | | 180 | | | | | 185 | | | | | |
| tac | agg | cta | gat | att | atg | gtc | att | gct | aac | agt | ggg | gtg | ctc | act | gtg | 630 | | | | |
| Tyr | Arg | Leu | Asp | Ile | Met | Val | Ile | Ala | Asn | Ser | Gly | Val | Leu | Thr | Val | | | | | |
| | | | | 190 | | | | | 195 | | | | | 200 | | | | | | |
| tgt | tct | ttt | gtt | ctt | cta | atc | atc | tca | tac | act | atc | atc | cta | atg | acc | 678 | | | | |
| Cys | Ser | Phe | Val | Leu | Leu | Ile | Ile | Ser | Tyr | Thr | Ile | Ile | Leu | Met | Thr | | | | | |
| | | | 205 | | | | | 210 | | | | | 215 | | | | | | | |
| atc | cag | cat | cgc | cct | tta | gat | aag | tcg | tcc | aaa | gct | ctg | tcc | act | ttg | 726 | | | | |
| Ile | Gln | His | Arg | Pro | Leu | Asp | Lys | Ser | Ser | Lys | Ala | Leu | Ser | Thr | Leu | | | | | |
| | | 220 | | | | | 225 | | | | | 230 | | | | | | | | |
| act | gct | cac | att | aca | gta | gtt | ctt | ttg | ttc | ttt | gga | cca | tgt | gtc | ttt | 774 | | | | |
| Thr | Ala | His | Ile | Thr | Val | Val | Leu | Leu | Phe | Phe | Gly | Pro | Cys | Val | Phe | | | | | |
| | 235 | | | | | 240 | | | | | 245 | | | | | | | | | |
| att | tat | gcc | tgg | cca | ttc | ccc | atc | aag | tca | tta | gat | aaa | ttc | ctt | gct | 822 | | | | |
| Ile | Tyr | Ala | Trp | Pro | Phe | Pro | Ile | Lys | Ser | Leu | Asp | Lys | Phe | Leu | Ala | | | | | |
| 250 | | | | 255 | | | | | | 260 | | | | 265 | | | | | | |
| gta | ttt | tat | tcc | gtg | atc | acc | cct | ctc | ttg | aac | cca | att | ata | tac | aca | 870 | | | | |
| Val | Phe | Tyr | Ser | Val | Ile | Thr | Pro | Leu | Leu | Asn | Pro | Ile | Ile | Tyr | Thr | | | | | |
| | | | | 270 | | | | 275 | | | | | | 280 | | | | | | |
| ctg | agg | aac | aaa | gac | atg | aag | acg | gca | ata | aga | cag | ctg | aga | aaa | tgg | 918 | | | | |
| Leu | Arg | Asn | Lys | Asp | Met | Lys | Thr | Ala | Ile | Arg | Gln | Leu | Arg | Lys | Trp | | | | | |
| | | 285 | | | | | | 290 | | | | 295 | | | | | | | | |
| gat | gca | cat | tct | agt | gta | aag | ttt | tagatcttat | ataactgtga | gattaatctc | 972 | | | | | | | | | |
| Asp | Ala | His | Ser | Ser | Val | Lys | Phe | | | | | | | | | | | | | |
| | | 300 | | | | 305 | | | | | | | | | | | | | | |
| agataatgac | acaaaatata | gtgaagttg | | | | | | | | | | | | | | 1001 | | | | |

<210> 104
 <211> 305
 <212> PRT
 <213> Homo sapiens

<400> 104

Met Val Thr Glu Phe Ile Phe Leu Gly Leu Ser Asp Ser Gln Glu Leu
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Gln Thr Phe Leu Phe Met Leu Phe Phe Val Phe Tyr Gly Gly Ile Val
20 25 30

Phe Gly Asn Leu Leu Ile Val Ile Thr Val Val Ser Asp Ser His Leu
35 40 45

His Ser Pro Met Tyr Ser Leu Leu Ala Asn Leu Ser Leu Ile Asp Leu
50 55 60

Ser Leu Ser Ser Val Thr Ala Pro Lys Met Ile Thr Asp Phe Phe Ser
65 70 75 80

Gln Arg Lys Val Ile Ser Phe Lys Gly Cys Leu Val Gln Ile Phe Leu
85 90 95

Leu His Phe Phe Gly Gly Gly Glu Met Val Ile Leu Ile Ala Met Gly
100 105 110

Phe Asp Arg Tyr Ile Ala Ile Cys Lys Pro Leu His Tyr Thr Thr Ile
115 120 125

Met Cys Gly Asn Ala Cys Val Gly Ile Met Ala Val Ala Trp Gly Ile
130 135 140

Gly Phe Leu His Ser Val Ser Gln Leu Ala Phe Ala Val His Leu Leu
145 150 155 160

Phe Cys Gly Pro Asn Glu Val Asp Ser Phe Tyr Cys Asp Leu Pro Arg
165 170 175

Val Ile Lys Leu Ala Cys Thr Asp Thr Tyr Arg Leu Asp Ile Met Val
180 185 190

Ile Ala Asn Ser Gly Val Leu Thr Val Cys Ser Phe Val Leu Leu Ile
195 200 205

Ile Ser Tyr Thr Ile Ile Leu Met Thr Ile Gln His Arg Pro Leu Asp
210 215 220

Lys Ser Ser Lys Ala Leu Ser Thr Leu Thr Ala His Ile Thr Val Val
225 230 235 240

Leu Leu Phe Phe Gly Pro Cys Val Phe Ile Tyr Ala Trp Pro Phe Pro
245 250 255

Ile Lys Ser Leu Asp Lys Phe Leu Ala Val Phe Tyr Ser Val Ile Thr
260 265 270

Pro Leu Leu Asn Pro Ile Ile Tyr Thr Leu Arg Asn Lys Asp Met Lys
275 280 285

Thr Ala Ile Arg Gln Leu Arg Lys Trp Asp Ala His Ser Ser Val Lys

gtg gtg acc tgc gcc att ttc cac ctc gcc ttc tgt gga cac aag gag 530
 Val Val Thr Ser Ala Ile Phe His Leu Ala Phe Cys Gly His Lys Glu
 160 165 170

atc cac cat ttc ttc tgc cac gtg cca cct ctg ttg aag ttg gcc tgt 578
 Ile His His Phe Phe Cys His Val Pro Pro Leu Leu Lys Leu Ala Cys
 175 180 185

gga gat gat gtg ctg gtg gtg gcc aaa ggc gtg ggc ttg gtg tgt atc 626
 Gly Asp Asp Val Leu Val Val Ala Lys Gly Val Gly Leu Val Cys Ile
 190 195 200 205

acg gcc ctg ctg ggc tgt ttt ctc ctc atc ctc ctc tcc tat gcc ttc 674
 Thr Ala Leu Leu Gly Cys Phe Leu Leu Ile Leu Leu Ser Tyr Ala Phe
 210 215 220

atc gtg gcc gcc atc ttg aag atc cct tct gct gaa ggt cgg aac aag 722
 Ile Val Ala Ala Ile Leu Lys Ile Pro Ser Ala Glu Gly Arg Asn Lys
 225 230 235

gcc ttc tcc acc tgt gcc tct cac ctc act gtg gtg gtc gtg cac tat 770
 Ala Phe Ser Thr Cys Ala Ser His Leu Thr Val Val Val Val His Tyr
 240 245 250

ggc ttt gcc tcc gtc att tac ctg aag ccc aaa ggt ccc cag tat ccg 818
 Gly Phe Ala Ser Val Ile Tyr Leu Lys Pro Lys Gly Pro Gln Tyr Pro
 255 260 265

gaa gga gac acc ttg atg ggc atc acc tac acg gtc ctc aca ccc ttc 866
 Glu Gly Asp Thr Leu Met Gly Ile Thr Tyr Thr Val Leu Thr Pro Phe
 270 275 280 285

ctc agc ccc atc atc ttc agc ctc agg aac aag gag ctg aag gtc gcc 914
 Leu Ser Pro Ile Ile Phe Ser Leu Arg Asn Lys Glu Leu Lys Val Ala
 290 295 300

atg aag aag act tgc ttc acc aaa ctc ttt cca cag aac tgc 956
 Met Lys Lys Thr Cys Phe Thr Lys Leu Phe Pro Gln Asn Cys
 305 310 315

tgaaatggct gactttctct caagagat 984

<210> 106
 <211> 315
 <212> PRT
 <213> Homo sapiens

<400> 106
 Met Gln Gly Leu Asn His Thr Ser Val Ser Glu Phe Ile Leu Val Gly
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 Phe Ser Ala Phe Pro His Leu Gln Leu Met Leu Phe Leu Leu Phe Leu
 20 25 30
 Leu Met Tyr Leu Phe Thr Leu Leu Gly Asn Leu Leu Ile Met Ala Thr
 35 40 45

Val Trp Ser Glu Arg Ser Leu His Met Pro Met Tyr Leu Phe Leu Cys
 50 55 60
 Ala Leu Ser Ile Thr Glu Ile Leu Tyr Thr Val Ala Ile Ile Pro Arg
 65 70 75 80
 Met Leu Ala Asp Leu Leu Ser Thr Gln Arg Ser Ile Ala Phe Leu Ala
 85 90 95
 Cys Ala Ser Gln Met Phe Phe Ser Phe Ser Phe Gly Phe Thr His Ser
 100 105 110
 Phe Leu Pro Thr Val Met Gly Tyr Asp Arg Tyr Val Ala Ile Cys His
 115 120 125
 Pro Leu Arg Tyr Asn Val Leu Met Ser Leu Arg Gly Cys Thr Cys Arg
 130 135 140
 Val Gly Cys Ser Trp Ala Gly Gly Leu Val Met Gly Met Val Val Thr
 145 150 155 160
 Ser Ala Ile Phe His Leu Ala Phe Cys Gly His Lys Glu Ile His His
 165 170 175
 Phe Phe Cys His Val Pro Pro Leu Leu Lys Leu Ala Cys Gly Asp Asp
 180 185 190
 Val Leu Val Val Ala Lys Gly Val Gly Leu Val Cys Ile Thr Ala Leu
 195 200 205
 Leu Gly Cys Phe Leu Leu Ile Leu Leu Ser Tyr Ala Phe Ile Val Ala
 210 215 220
 Ala Ile Leu Lys Ile Pro Ser Ala Glu Gly Arg Asn Lys Ala Phe Ser
 225 230 235 240
 Thr Cys Ala Ser His Leu Thr Val Val Val Val His Tyr Gly Phe Ala
 245 250 255
 Ser Val Ile Tyr Leu Lys Pro Lys Gly Pro Gln Tyr Pro Glu Gly Asp
 260 265 270
 Thr Leu Met Gly Ile Thr Tyr Thr Val Leu Thr Pro Phe Leu Ser Pro
 275 280 285
 Ile Ile Phe Ser Leu Arg Asn Lys Glu Leu Lys Val Ala Met Lys Lys
 290 295 300
 Thr Cys Phe Thr Lys Leu Phe Pro Gln Asn Cys
 305 310 315

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 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (3)..(923)

<400> 107

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| Met His Phe Val Thr Glu Phe Val Leu Leu Gly Phe His Gly Gln | |
| 1 5 10 15 | |
| agg gag atg cag agc tgc ttc ttc tca ttc atc ctg gtt ctc tat ctc | 95 |
| Arg Glu Met Gln Ser Cys Phe Phe Ser Phe Ile Leu Val Leu Tyr Leu | |
| 20 25 30 | |
| ctg aca ctg cta ggg aat gga gct att gtc tgt gca gtg aaa ttg gac | 143 |
| Leu Thr Leu Leu Gly Asn Gly Ala Ile Val Cys Ala Val Lys Leu Asp | |
| 35 40 45 | |
| agg cgg ctc cac aca ccc atg tac atc ctt ctg gga aac ttt gcc ttt | 191 |
| Arg Arg Leu His Thr Pro Met Tyr Ile Leu Leu Gly Asn Phe Ala Phe | |
| 50 55 60 | |
| cta gag atc tgg tac att tcc tcc act gtc cca aac atg cta gtc aat | 239 |
| Leu Glu Ile Trp Tyr Ile Ser Ser Thr Val Pro Asn Met Leu Val Asn | |
| 65 70 75 | |
| atc ctc tct gag act aaa acc atc tcc ttc tct ggt tgc ttc ctg caa | 287 |
| Ile Leu Ser Glu Thr Lys Thr Ile Ser Phe Ser Gly Cys Phe Leu Gln | |
| 80 85 90 95 | |
| ttc tat ttc ttt ttt tca ctg ggt aca aca gag tgt ttc ttt tta tca | 335 |
| Phe Tyr Phe Phe Phe Ser Leu Gly Thr Thr Glu Cys Phe Phe Leu Ser | |
| 100 105 110 | |
| gtt atg gct tat gat cgg tat ctg gcc atc tgt cgt cca tta cac tac | 383 |
| Val Met Ala Tyr Asp Arg Tyr Leu Ala Ile Cys Arg Pro Leu His Tyr | |
| 115 120 125 | |
| ccc tcc atc atg act ggg aag ttc tgt ata att ctg gtc tgt gta tgc | 431 |
| Pro Ser Ile Met Thr Gly Lys Phe Cys Ile Ile Leu Val Cys Val Cys | |
| 130 135 140 | |
| tgg gta ggc gga ttt ctc tgc tat cca gtc cct att gtt ctt atc tcc | 479 |
| Trp Val Gly Gly Phe Leu Cys Tyr Pro Val Pro Ile Val Leu Ile Ser | |
| 145 150 155 | |
| caa ctt ccc ttc tgt ggg ccc aac atc att gac cac ttt gtg tgt gac | 527 |
| Gln Leu Pro Phe Cys Gly Pro Asn Ile Ile Asp His Phe Val Cys Asp | |
| 160 165 170 175 | |
| cca ggc cca ttg ttt gca ctg gcc tgc atc tct gct cct tcc act gag | 575 |
| Pro Gly Pro Leu Phe Ala Leu Ala Cys Ile Ser Ala Pro Ser Thr Glu | |
| 180 185 190 | |
| ctt atc tgt tac acc ttc aac tcg atg att atc ttt ggg ccc ttc ctc | 623 |
| Leu Ile Cys Tyr Thr Phe Asn Ser Met Ile Ile Phe Gly Pro Phe Leu | |

| 195 | 200 | 205 | |
|---|-----|-----|-----|
| tcc atc ttg gga tct cac act ctg gtc atc aga gct gtg ctt tgt att | | | 671 |
| Ser Ile Leu Gly Ser His Thr Leu Val Ile Arg Ala Val Leu Cys Ile | | | |
| 210 | 215 | 220 | |
| ccc tct ggt gct ggt cga act aaa gct ttc tcc aca cgt ggg tcc cac | | | 719 |
| Pro Ser Gly Ala Gly Arg Thr Lys Ala Phe Ser Thr Arg Gly Ser His | | | |
| 225 | 230 | 235 | |
| cta atg gtg gtg tct cta ttc tat gga acc ctt atg gtg atg tat gtg | | | 767 |
| Leu Met Val Val Ser Leu Phe Tyr Gly Thr Leu Met Val Met Tyr Val | | | |
| 240 | 245 | 250 | 255 |
| agc cca aca tca ggg aac cca gca gga atg cag aag atc atc act ctg | | | 815 |
| Ser Pro Thr Ser Gly Asn Pro Ala Gly Met Gln Lys Ile Ile Thr Leu | | | |
| 260 | 265 | 270 | |
| gta tac aca gca atg act cca ttc tta aat ccc ctt atc tat agt ctt | | | 863 |
| Val Tyr Thr Ala Met Thr Pro Phe Leu Asn Pro Leu Ile Tyr Ser Leu | | | |
| 275 | 280 | 285 | |
| cga aac aaa gac atg aaa gat gct tta aag aga gtc ctg ggg tta aca | | | 911 |
| Arg Asn Lys Asp Met Lys Asp Ala Leu Lys Arg Val Leu Gly Leu Thr | | | |
| 290 | 295 | 300 | |
| gtt agc caa aac tgaga | | | 928 |
| Val Ser Gln Asn | | | |
| 305 | | | |

<210> 108
 <211> 307
 <212> PRT
 <213> Homo sapiens

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| <400> 108 | | | | | | | | | | | | | | | |
| Met | His | Phe | Val | Thr | Glu | Phe | Val | Leu | Leu | Gly | Phe | His | Gly | Gln | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Met | Gln | Ser | Cys | Phe | Phe | Ser | Phe | Ile | Leu | Val | Leu | Tyr | Leu | Leu |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Thr | Leu | Leu | Gly | Asn | Gly | Ala | Ile | Val | Cys | Ala | Val | Lys | Leu | Asp | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Arg | Leu | His | Thr | Pro | Met | Tyr | Ile | Leu | Leu | Gly | Asn | Phe | Ala | Phe | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Ile | Trp | Tyr | Ile | Ser | Ser | Thr | Val | Pro | Asn | Met | Leu | Val | Asn | Ile |
| 65 | | | | 70 | | | | | | 75 | | | | 80 | |
| Leu | Ser | Glu | Thr | Lys | Thr | Ile | Ser | Phe | Ser | Gly | Cys | Phe | Leu | Gln | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Tyr | Phe | Phe | Phe | Ser | Leu | Gly | Thr | Thr | Glu | Cys | Phe | Phe | Leu | Ser | Val |
| | | | 100 | | | | 105 | | | | | | 110 | | |

Met Ala Tyr Asp Arg Tyr Leu Ala Ile Cys Arg Pro Leu His Tyr Pro
 115 120 125
 Ser Ile Met Thr Gly Lys Phe Cys Ile Ile Leu Val Cys Val Cys Trp
 130 135 140
 Val Gly Gly Phe Leu Cys Tyr Pro Val Pro Ile Val Leu Ile Ser Gln
 145 150 155 160
 Leu Pro Phe Cys Gly Pro Asn Ile Ile Asp His Phe Val Cys Asp Pro
 165 170 175
 Gly Pro Leu Phe Ala Leu Ala Cys Ile Ser Ala Pro Ser Thr Glu Leu
 180 185 190
 Ile Cys Tyr Thr Phe Asn Ser Met Ile Ile Phe Gly Pro Phe Leu Ser
 195 200 205
 Ile Leu Gly Ser His Thr Leu Val Ile Arg Ala Val Leu Cys Ile Pro
 210 215 220
 Ser Gly Ala Gly Arg Thr Lys Ala Phe Ser Thr Arg Gly Ser His Leu
 225 230 235 240
 Met Val Val Ser Leu Phe Tyr Gly Thr Leu Met Val Met Tyr Val Ser
 245 250 255
 Pro Thr Ser Gly Asn Pro Ala Gly Met Gln Lys Ile Ile Thr Leu Val
 260 265 270
 Tyr Thr Ala Met Thr Pro Phe Leu Asn Pro Leu Ile Tyr Ser Leu Arg
 275 280 285
 Asn Lys Asp Met Lys Asp Ala Leu Lys Arg Val Leu Gly Leu Thr Val
 290 295 300
 Ser Gln Asn
 305

<210> 109
 <211> 966
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (14)..(955)

<400> 109
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 Met Glu Lys Arg Asn Leu Thr Val Val Arg Glu Phe
 1 5 10
 gtc ctt ctg gga ctt cct agc tca gca gag cag cag cac ctc ctg tct 97

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Leu | Leu | Gly | Leu | Pro | Ser | Ser | Ala | Glu | Gln | Gln | His | Leu | Leu | Ser | | |
| | 15 | | | | | | 20 | | | | | 25 | | | | | |
| gtg | ctc | ttt | ctc | tgt | atg | tat | tta | gcc | acc | acc | ttg | ggg | aac | atg | ctc | 145 | |
| Val | Leu | Phe | Leu | Cys | Met | Tyr | Leu | Ala | Thr | Thr | Leu | Gly | Asn | Met | Leu | | |
| | 30 | | | | | 35 | | | | | 40 | | | | | | |
| atc | att | gcg | acg | att | ggc | ttt | gac | tct | cac | ctc | cat | tcc | cct | atg | tac | 193 | |
| Ile | Ile | Ala | Thr | Ile | Gly | Phe | Asp | Ser | His | Leu | His | Ser | Pro | Met | Tyr | | |
| | 45 | | | | 50 | | | | | 55 | | | | | 60 | | |
| ttc | ttc | ctt | agt | aac | ttg | gcc | ttt | gtt | gac | atc | tgc | ttt | acg | tcg | act | 241 | |
| Phe | Phe | Leu | Ser | Asn | Leu | Ala | Phe | Val | Asp | Ile | Cys | Phe | Thr | Ser | Thr | | |
| | | | | 65 | | | | 70 | | | | | | | 75 | | |
| aca | gtc | ccc | caa | atg | gta | gtg | aat | atc | ttg | act | ggc | acc | aag | act | atc | 289 | |
| Thr | Val | Pro | Gln | Met | Val | Val | Asn | Ile | Leu | Thr | Gly | Thr | Lys | Thr | Ile | | |
| | | | 80 | | | | 85 | | | | | | 90 | | | | |
| tct | ttt | gca | ggc | tgc | ctc | acc | cag | ctc | ttc | ttc | ttc | gtt | tct | ttt | gtg | 337 | |
| Ser | Phe | Ala | Gly | Cys | Leu | Thr | Gln | Leu | Phe | Phe | Phe | Val | Ser | Phe | Val | | |
| | 95 | | | | | 100 | | | | | | 105 | | | | | |
| aat | atg | gac | agc | ctc | ctt | ctg | tgt | gtg | atg | gcg | tat | gat | aga | tat | gtg | 385 | |
| Asn | Met | Asp | Ser | Leu | Leu | Leu | Cys | Val | Met | Ala | Tyr | Asp | Arg | Tyr | Val | | |
| | 110 | | | | | 115 | | | | | | 120 | | | | | |
| gcg | att | tgc | cac | ccc | tta | cat | tac | acc | gcc | aga | atg | aac | ctg | tgc | ctt | 433 | |
| Ala | Ile | Cys | His | Pro | Leu | His | Tyr | Thr | Ala | Arg | Met | Asn | Leu | Cys | Leu | | |
| | 125 | | | | 130 | | | | | 135 | | | | | 140 | | |
| tgt | gtc | cag | cta | gtg | gct | gga | ctg | tgg | ctt | gtt | act | tac | ctc | cac | gcc | 481 | |
| Cys | Val | Gln | Leu | Val | Ala | Gly | Leu | Trp | Leu | Val | Thr | Tyr | Leu | His | Ala | | |
| | | | | 145 | | | | 150 | | | | | | 155 | | | |
| ctc | ctg | cat | act | gtc | cta | ata | gca | cag | ctg | tcc | ttc | tgt | gcc | tcc | aat | 529 | |
| Leu | Leu | His | Thr | Val | Leu | Ile | Ala | Gln | Leu | Ser | Phe | Cys | Ala | Ser | Asn | | |
| | | | 160 | | | | | 165 | | | | | 170 | | | | |
| atc | atc | cat | cat | ttc | ttc | tgt | gat | ctc | aat | cct | ctc | ctg | cag | ctc | tct | 577 | |
| Ile | Ile | His | His | Phe | Phe | Cys | Asp | Leu | Asn | Pro | Leu | Leu | Gln | Leu | Ser | | |
| | | 175 | | | | | 180 | | | | | | 185 | | | | |
| tgc | tct | gac | gtc | tcc | ttc | aat | gta | atg | atc | att | ttt | gca | gta | gga | ggg | 625 | |
| Cys | Ser | Asp | Val | Ser | Phe | Asn | Val | Met | Ile | Ile | Phe | Ala | Val | Gly | Gly | | |
| | 190 | | | | | 195 | | | | | 200 | | | | | | |
| cta | ttg | gct | ctc | acg | ccc | ctt | gtc | tgt | atc | ctc | gta | tct | tat | gga | ctt | 673 | |
| Leu | Leu | Ala | Leu | Thr | Pro | Leu | Val | Cys | Ile | Leu | Val | Ser | Tyr | Gly | Leu | | |
| | 205 | | | | 210 | | | | | 215 | | | | | 220 | | |
| atc | ttc | tcc | act | gtt | ctg | aag | atc | acc | tct | act | cag | ggc | aag | cag | aga | 721 | |
| Ile | Phe | Ser | Thr | Val | Leu | Lys | Ile | Thr | Ser | Thr | Gln | Gly | Lys | Gln | Arg | | |
| | | | 225 | | | | | | 230 | | | | | 235 | | | |
| gct | gtt | tcc | acc | tgc | agc | tgc | cac | ctg | tca | gtg | gtg | gtg | ttg | ttt | tac | 769 | |
| Ala | Val | Ser | Thr | Cys | Ser | Cys | His | Leu | Ser | Val | Val | Val | Leu | Phe | Tyr | | |

| 240 | 245 | 250 | |
|---|-----|-----|-----|
| ggc aca gcc atc gcc gtc tat ttc agc cct tca tcc ccc cat atg cct | | | 817 |
| Gly Thr Ala Ile Ala Val Tyr Phe Ser Pro Ser Ser Pro His Met Pro | | | |
| 255 | 260 | 265 | |
| gag agc gac act ctg tca acc atc atg tat tca atg gtg gct ccg atg | | | 865 |
| Glu Ser Asp Thr Leu Ser Thr Ile Met Tyr Ser Met Val Ala Pro Met | | | |
| 270 | 275 | 280 | |
| ctg aat cct ttc atc tat acc cta agg aac agg gat atg aag agg gga | | | 913 |
| Leu Asn Pro Phe Ile Tyr Thr Leu Arg Asn Arg Asp Met Lys Arg Gly | | | |
| 285 | 290 | 295 | 300 |
| ctt cag aaa atg ctt ctc aag tgc aca gtc ttt cag cag caa | | | 955 |
| Leu Gln Lys Met Leu Leu Lys Cys Thr Val Phe Gln Gln Gln | | | |
| 305 | 310 | | |
| taatgacctc a | | | 966 |

<210> 110
 <211> 314
 <212> PRT
 <213> Homo sapiens

<400> 110
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 1 5 10 15
 Leu Pro Ser Ser Ala Glu Gln Gln His Leu Leu Ser Val Leu Phe Leu
 20 25 30
 Cys Met Tyr Leu Ala Thr Thr Leu Gly Asn Met Leu Ile Ile Ala Thr
 35 40 45
 Ile Gly Phe Asp Ser His Leu His Ser Pro Met Tyr Phe Phe Leu Ser
 50 55 60
 Asn Leu Ala Phe Val Asp Ile Cys Phe Thr Ser Thr Thr Val Pro Gln
 65 70 75 80
 Met Val Val Asn Ile Leu Thr Gly Thr Lys Thr Ile Ser Phe Ala Gly
 85 90 95
 Cys Leu Thr Gln Leu Phe Phe Phe Val Ser Phe Val Asn Met Asp Ser
 100 105 110
 Leu Leu Leu Cys Val Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys His
 115 120 125
 Pro Leu His Tyr Thr Ala Arg Met Asn Leu Cys Leu Cys Val Gln Leu
 130 135 140
 Val Ala Gly Leu Trp Leu Val Thr Tyr Leu His Ala Leu Leu His Thr
 145 150 155 160

Val Leu Ile Ala Gln Leu Ser Phe Cys Ala Ser Asn Ile Ile His His
165 170 175

Phe Phe Cys Asp Leu Asn Pro Leu Leu Gln Leu Ser Cys Ser Asp Val
180 185 190

Ser Phe Asn Val Met Ile Ile Phe Ala Val Gly Gly Leu Leu Ala Leu
195 200 205

Thr Pro Leu Val Cys Ile Leu Val Ser Tyr Gly Leu Ile Phe Ser Thr
210 215 220

Val Leu Lys Ile Thr Ser Thr Gln Gly Lys Gln Arg Ala Val Ser Thr
225 230 235 240

Cys Ser Cys His Leu Ser Val Val Val Leu Phe Tyr Gly Thr Ala Ile
245 250 255

Ala Val Tyr Phe Ser Pro Ser Ser Pro His Met Pro Glu Ser Asp Thr
260 265 270

Leu Ser Thr Ile Met Tyr Ser Met Val Ala Pro Met Leu Asn Pro Phe
275 280 285

Ile Tyr Thr Leu Arg Asn Arg Asp Met Lys Arg Gly Leu Gln Lys Met
290 295 300

Leu Leu Lys Cys Thr Val Phe Gln Gln Gln
305 310

<210> 111
<211> 966
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (14)..(955)

<400> 111
atttggtggg aat atg gaa aaa aga aat cta aca gtt gtc agg gaa ttc 49
Met Glu Lys Arg Asn Leu Thr Val Val Arg Glu Phe
1 5 10

gtc ctt ctg gga ctt cct agc tca gca gag cag cag cac ctc ctg tct 97
Val Leu Leu Gly Leu Pro Ser Ser Ala Glu Gln Gln His Leu Leu Ser
15 20 25

gtg ctc ttt ctc tgt atg tat tta gcc acc acc ttg ggg aac atg ctc 145
Val Leu Phe Leu Cys Met Tyr Leu Ala Thr Thr Leu Gly Asn Met Leu
30 35 40

atc att gcg acg att ggc ttt gac tct cac ctc cat tcc cct atg tac 193
Ile Ile Ala Thr Ile Gly Phe Asp Ser His Leu His Ser Pro Met Tyr
45 50 55 60

| | |
|---|-----|
| ttc ttc ctt agt aac ttg gcc ttt gtt gac atc tgc ttt acg tcg act | 241 |
| Phe Phe Leu Ser Asn Leu Ala Phe Val Asp Ile Cys Phe Thr Ser Thr | |
| 65 70 75 | |
| aca gtc ccc caa atg gta gtg aat atc ttg act ggc acc aag act atc | 289 |
| Thr Val Pro Gln Met Val Val Asn Ile Leu Thr Gly Thr Lys Thr Ile | |
| 80 85 90 | |
| tct ttt gca ggc tgc ctc acc cag ctc ttc ttc ttc gtt tct ttt gtg | 337 |
| Ser Phe Ala Gly Cys Leu Thr Gln Leu Phe Phe Phe Val Ser Phe Val | |
| 95 100 105 | |
| aat atg gac agc ctc ctt ctg tgt gtg atg gcg tat gat aga tat gtg | 385 |
| Asn Met Asp Ser Leu Leu Leu Cys Val Met Ala Tyr Asp Arg Tyr Val | |
| 110 115 120 | |
| gcg att tgc cac ccc tta cat tac acc gcc aga atg aac ctg tgc ctt | 433 |
| Ala Ile Cys His Pro Leu His Tyr Thr Ala Arg Met Asn Leu Cys Leu | |
| 125 130 135 140 | |
| tgt gtc cag cta gtg gct gga ctg tgg ctt gtt act tac ctc cac gcc | 481 |
| Cys Val Gln Leu Val Ala Gly Leu Trp Leu Val Thr Tyr Leu His Ala | |
| 145 150 155 | |
| ctc ctg cat act gtc cta ata gca cag ctg tcc ttc tgt gcc tcc aat | 529 |
| Leu Leu His Thr Val Leu Ile Ala Gln Leu Ser Phe Cys Ala Ser Asn | |
| 160 165 170 | |
| atc atc cat cat ttc ttc tgt gat ctc aat cct ctc ctg cag ctc tct | 577 |
| Ile Ile His His Phe Phe Cys Asp Leu Asn Pro Leu Leu Gln Leu Ser | |
| 175 180 185 | |
| tgc tct gac gtc tcc ttc aat gta atg atc att ttt gca gta gga ggt | 625 |
| Cys Ser Asp Val Ser Phe Asn Val Met Ile Ile Phe Ala Val Gly Gly | |
| 190 195 200 | |
| cta ttg gct ctc acg ccc ctt gtc tgt atc ctc gta tct tat gga ctt | 673 |
| Leu Leu Ala Leu Thr Pro Leu Val Cys Ile Leu Val Ser Tyr Gly Leu | |
| 205 210 215 220 | |
| atc ttc tcc act gtt ctg aag atc acc tct act cag ggc aag cag aga | 721 |
| Ile Phe Ser Thr Val Leu Lys Ile Thr Ser Thr Gln Gly Lys Gln Arg | |
| 225 230 235 | |
| gct gtt tcc acc tgc agc tgc cac ctg tca gtg gtg gtg ttg ttt tac | 769 |
| Ala Val Ser Thr Cys Ser Cys His Leu Ser Val Val Val Leu Phe Tyr | |
| 240 245 250 | |
| ggc aca gcc atc gcc gtc tat ttc agc cct tca tcc ccc cat atg cct | 817 |
| Gly Thr Ala Ile Ala Val Tyr Phe Ser Pro Ser Ser Pro His Met Pro | |
| 255 260 265 | |
| gag agc gac act ctg tca acc atc atg tat tca atg gtg gct ccg atg | 865 |
| Glu Ser Asp Thr Leu Ser Thr Ile Met Tyr Ser Met Val Ala Pro Met | |
| 270 275 280 | |

ctg aat cct ttc atc tat acc cta agg aac agg gat atg aag agg gga 913
 Leu Asn Pro Phe Ile Tyr Thr Leu Arg Asn Arg Asp Met Lys Arg Gly
 285 290 295 300
 ctt cag aaa atg ctt ctc aag tgc aca gtc ttt cag cag caa 955
 Leu Gln Lys Met Leu Leu Lys Cys Thr Val Phe Gln Gln Gln
 305 310
 taatgacctc a 966

 <210> 112
 <211> 314
 <212> PRT
 <213> Homo sapiens

 <400> 112
 Met Glu Lys Arg Asn Leu Thr Val Val Arg Glu Phe Val Leu Leu Gly
 1 5 10 15
 Leu Pro Ser Ser Ala Glu Gln Gln His Leu Leu Ser Val Leu Phe Leu
 20 25 30
 Cys Met Tyr Leu Ala Thr Thr Leu Gly Asn Met Leu Ile Ile Ala Thr
 35 40 45
 Ile Gly Phe Asp Ser His Leu His Ser Pro Met Tyr Phe Phe Leu Ser
 50 55 60
 Asn Leu Ala Phe Val Asp Ile Cys Phe Thr Ser Thr Thr Val Pro Gln
 65 70 75 80
 Met Val Val Asn Ile Leu Thr Gly Thr Lys Thr Ile Ser Phe Ala Gly
 85 90 95
 Cys Leu Thr Gln Leu Phe Phe Phe Val Ser Phe Val Asn Met Asp Ser
 100 105 110
 Leu Leu Leu Cys Val Met Ala Tyr Asp Arg Tyr Val Ala Ile Cys His
 115 120 125
 Pro Leu His Tyr Thr Ala Arg Met Asn Leu Cys Leu Cys Val Gln Leu
 130 135 140
 Val Ala Gly Leu Trp Leu Val Thr Tyr Leu His Ala Leu Leu His Thr
 145 150 155 160
 Val Leu Ile Ala Gln Leu Ser Phe Cys Ala Ser Asn Ile Ile His His
 165 170 175
 Phe Phe Cys Asp Leu Asn Pro Leu Leu Gln Leu Ser Cys Ser Asp Val
 180 185 190
 Ser Phe Asn Val Met Ile Ile Phe Ala Val Gly Gly Leu Leu Ala Leu
 195 200 205
 Thr Pro Leu Val Cys Ile Leu Val Ser Tyr Gly Leu Ile Phe Ser Thr

| | | |
|---|-----|---------|
| 210 | 215 | 220 |
| Val Leu Lys Ile Thr Ser Thr Gln Gly Lys Gln Arg Ala Val Ser Thr | | |
| 225 | 230 | 235 240 |
| Cys Ser Cys His Leu Ser Val Val Val Leu Phe Tyr Gly Thr Ala Ile | | |
| | 245 | 250 255 |
| Ala Val Tyr Phe Ser Pro Ser Ser Pro His Met Pro Glu Ser Asp Thr | | |
| | 260 | 265 270 |
| Leu Ser Thr Ile Met Tyr Ser Met Val Ala Pro Met Leu Asn Pro Phe | | |
| | 275 | 280 285 |
| Ile Tyr Thr Leu Arg Asn Arg Asp Met Lys Arg Gly Leu Gln Lys Met | | |
| | 290 | 295 300 |
| Leu Leu Lys Cys Thr Val Phe Gln Gln Gln | | |
| 305 | 310 | |

<210> 113
 <211> 984
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (38)..(979)

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| <400> 113 | |
| atgtccataa aatcaatgca cgacttcatt actgaaa atg gaa aga caa aat caa | 55 |
| | Met Glu Arg Gln Asn Gln |
| | 1 5 |
| agc tgt gtg gtt gaa ttc atc ctc ttg ggc ttt tct aac tat cct gag | 103 |
| Ser Cys Val Val Glu Phe Ile Leu Leu Gly Phe Ser Asn Tyr Pro Glu | |
| | 10 15 20 |
| ctc cag ggg cag ctc ttt gtg gct ttc ctg gtt att tat ctg gtg acc | 151 |
| Leu Gln Gly Gln Leu Phe Val Ala Phe Leu Val Ile Tyr Leu Val Thr | |
| | 25 30 35 |
| ctg ata gga aat gcc att att ata gtc atc gtc tcc cta gac cag agc | 199 |
| Leu Ile Gly Asn Ala Ile Ile Ile Val Ile Val Ser Leu Asp Gln Ser | |
| | 40 45 50 |
| ctc cac gtt ccc atg tac ctg ttt ctc ctg aac tta tct gtg gtg gac | 247 |
| Leu His Val Pro Met Tyr Leu Phe Leu Leu Asn Leu Ser Val Val Asp | |
| | 55 60 65 70 |
| ctg agt ttc agt gca gtt att atg cct gaa atg ctg gtg gtc ctc tct | 295 |
| Leu Ser Phe Ser Ala Val Ile Met Pro Glu Met Leu Val Val Leu Ser | |
| | 75 80 85 |
| act gaa aaa act aca att tct ttt ggg ggc tgt ttt gca cag atg tat | 343 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr | Glu | Lys | Thr | Thr | Ile | Ser | Phe | Gly | Gly | Cys | Phe | Ala | Gln | Met | Tyr | | |
| | | | 90 | | | | | 95 | | | | | 100 | | | | |
| ttc | atc | ctt | ctt | ttt | ggg | ggg | gct | gaa | tgt | ttt | ctt | ctg | gga | gta | atg | 391 | |
| Phe | Ile | Leu | Leu | Phe | Gly | Gly | Ala | Glu | Cys | Phe | Leu | Leu | Gly | Val | Met | | |
| | | 105 | | | | | 110 | | | | | 115 | | | | | |
| gct | tat | gac | cga | ttt | gct | gca | att | tgc | cat | cct | ctc | aac | tac | caa | atg | 439 | |
| Ala | Tyr | Asp | Arg | Phe | Ala | Ala | Ile | Cys | His | Pro | Leu | Asn | Tyr | Gln | Met | | |
| | 120 | | | | | 125 | | | | | 130 | | | | | | |
| att | atg | aat | aaa | gga | ggg | ttt | atg | aaa | tta | att | ata | ttt | tca | tgg | gcc | 487 | |
| Ile | Met | Asn | Lys | Gly | Gly | Phe | Met | Lys | Leu | Ile | Ile | Phe | Ser | Trp | Ala | | |
| 135 | | | | | 140 | | | | | 145 | | | | | 150 | | |
| tta | ggg | ttt | atg | tta | ggg | act | ggt | caa | aca | tca | tgg | gta | tct | agt | ttt | 535 | |
| Leu | Gly | Phe | Met | Leu | Gly | Thr | Val | Gln | Thr | Ser | Trp | Val | Ser | Ser | Phe | | |
| | | | 155 | | | | | 160 | | | | | 165 | | | | |
| ccc | ttt | tgt | ggc | ctt | aat | gaa | att | aac | cat | ata | tct | tgt | gaa | acc | cca | 583 | |
| Pro | Phe | Cys | Gly | Leu | Asn | Glu | Ile | Asn | His | Ile | Ser | Cys | Glu | Thr | Pro | | |
| | | | 170 | | | | | 175 | | | | | 180 | | | | |
| gca | gtg | tta | gaa | ctt | gca | tgt | gca | gac | acg | ttt | ttg | ttt | gaa | atc | tat | 631 | |
| Ala | Val | Leu | Glu | Leu | Ala | Cys | Ala | Asp | Thr | Phe | Leu | Phe | Glu | Ile | Tyr | | |
| | | 185 | | | | | 190 | | | | | 195 | | | | | |
| gca | ttc | aca | ggc | acc | ttt | ttg | att | att | ttg | gtt | cct | ttc | ttg | ttg | ata | 679 | |
| Ala | Phe | Thr | Gly | Thr | Phe | Leu | Ile | Ile | Leu | Val | Pro | Phe | Leu | Leu | Ile | | |
| | 200 | | | | | 205 | | | | | 210 | | | | | | |
| ctc | ttg | tct | tac | att | cga | gtt | ctg | ttt | gcc | atc | ctg | aag | atg | cca | tca | 727 | |
| Leu | Leu | Ser | Tyr | Ile | Arg | Val | Leu | Phe | Ala | Ile | Leu | Lys | Met | Pro | Ser | | |
| 215 | | | | | 220 | | | | 225 | | | | | 230 | | | |
| acc | act | ggg | aga | caa | aag | gcc | ttt | tcc | acc | tgt | gcc | gct | cac | ctc | aca | 775 | |
| Thr | Thr | Gly | Arg | Gln | Lys | Ala | Phe | Ser | Thr | Cys | Ala | Ala | His | Leu | Thr | | |
| | | | 235 | | | | | 240 | | | | | 245 | | | | |
| tct | gtg | acc | cta | ttc | tat | ggc | aca | gcc | agt | atg | act | tat | tta | caa | ccc | 823 | |
| Ser | Val | Thr | Leu | Phe | Tyr | Gly | Thr | Ala | Ser | Met | Thr | Tyr | Leu | Gln | Pro | | |
| | | | 250 | | | | | 255 | | | | | 260 | | | | |
| aaa | tct | ggc | tac | tca | ccg | gaa | acc | aag | aaa | gtg | atg | tca | ttg | tct | tac | 871 | |
| Lys | Ser | Gly | Tyr | Ser | Pro | Glu | Thr | Lys | Lys | Val | Met | Ser | Leu | Ser | Tyr | | |
| | | 265 | | | | 270 | | | | | 275 | | | | | | |
| tca | ctt | ctg | aca | cca | ctg | ctg | aat | ccg | ctt | atc | tac | agt | ttg | cga | aat | 919 | |
| Ser | Leu | Leu | Thr | Pro | Leu | Leu | Asn | Pro | Leu | Ile | Tyr | Ser | Leu | Arg | Asn | | |
| | | 280 | | | | 285 | | | | | 290 | | | | | | |
| agt | gag | atg | aag | agg | gct | ttg | atg | aaa | tta | tgg | cga | agg | cga | gtg | gtt | 967 | |
| Ser | Glu | Met | Lys | Arg | Ala | Leu | Met | Lys | Leu | Trp | Arg | Arg | Arg | Val | Val | | |
| 295 | | | | | 300 | | | | | 305 | | | | | 310 | | |
| tta | cac | aca | atc | tgact | | | | | | | | | | | | 984 | |
| Leu | His | Thr | Ile | | | | | | | | | | | | | | |

<210> 114
 <211> 314
 <212> PRT
 <213> Homo sapiens

 <400> 114
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 Phe Ser Asn Tyr Pro Glu Leu Gln Gly Gln Leu Phe Val Ala Phe Leu
 20 25 30
 Val Ile Tyr Leu Val Thr Leu Ile Gly Asn Ala Ile Ile Ile Val Ile
 35 40 45
 Val Ser Leu Asp Gln Ser Leu His Val Pro Met Tyr Leu Phe Leu Leu
 50 55 60
 Asn Leu Ser Val Val Asp Leu Ser Phe Ser Ala Val Ile Met Pro Glu
 65 70 75 80
 Met Leu Val Val Leu Ser Thr Glu Lys Thr Thr Ile Ser Phe Gly Gly
 85 90 95
 Cys Phe Ala Gln Met Tyr Phe Ile Leu Leu Phe Gly Gly Ala Glu Cys
 100 105 110
 Phe Leu Leu Gly Val Met Ala Tyr Asp Arg Phe Ala Ala Ile Cys His
 115 120 125
 Pro Leu Asn Tyr Gln Met Ile Met Asn Lys Gly Gly Phe Met Lys Leu
 130 135 140
 Ile Ile Phe Ser Trp Ala Leu Gly Phe Met Leu Gly Thr Val Gln Thr
 145 150 155 160
 Ser Trp Val Ser Ser Phe Pro Phe Cys Gly Leu Asn Glu Ile Asn His
 165 170 175
 Ile Ser Cys Glu Thr Pro Ala Val Leu Glu Leu Ala Cys Ala Asp Thr
 180 185 190
 Phe Leu Phe Glu Ile Tyr Ala Phe Thr Gly Thr Phe Leu Ile Ile Leu
 195 200 205
 Val Pro Phe Leu Leu Ile Leu Leu Ser Tyr Ile Arg Val Leu Phe Ala
 210 215 220
 Ile Leu Lys Met Pro Ser Thr Thr Gly Arg Gln Lys Ala Phe Ser Thr
 225 230 235 240
 Cys Ala Ala His Leu Thr Ser Val Thr Leu Phe Tyr Gly Thr Ala Ser
 245 250 255
 Met Thr Tyr Leu Gln Pro Lys Ser Gly Tyr Ser Pro Glu Thr Lys Lys

| | | | |
|---|-----|-----|--|
| 260 | 265 | 270 | |
| Val Met Ser Leu Ser Tyr Ser Leu Leu Thr Pro Leu Leu Asn Pro Leu | | | |
| 275 | 280 | 285 | |
| Ile Tyr Ser Leu Arg Asn Ser Glu Met Lys Arg Ala Leu Met Lys Leu | | | |
| 290 | 295 | 300 | |
| Trp Arg Arg Arg Val Val Leu His Thr Ile | | | |
| 305 | 310 | | |
| | | | |
| <210> 115 | | | |
| <211> 891 | | | |
| <212> DNA | | | |
| <213> Homo sapiens | | | |
| | | | |
| <220> | | | |
| <221> CDS | | | |
| <222> (1)..(888) | | | |
| | | | |
| <400> 115 | | | |
| cta tca ggt gca ccc tcc tgg tgg aca ttg ccc ctc att gct gtc tac | 48 | | |
| Leu Ser Gly Ala Pro Ser Trp Trp Thr Leu Pro Leu Ile Ala Val Tyr | | | |
| 1 5 10 15 | | | |
| ctt ctc tct gcc ctg gga aat ggc acc atc ctc tgg atc att gcc ctg | 96 | | |
| Leu Leu Ser Ala Leu Gly Asn Gly Thr Ile Leu Trp Ile Ile Ala Leu | | | |
| 20 25 30 | | | |
| gag ccc gcc ctg cac cgc cca atg cac ttc ttc ctc ttc ttg ctt agt | 144 | | |
| Glu Pro Ala Leu His Arg Pro Met His Phe Phe Leu Phe Leu Leu Ser | | | |
| 35 40 45 | | | |
| gtg tct gat att gga ttg gtc act gcc ctg atg ccc aca ctg ctg ggc | 192 | | |
| Val Ser Asp Ile Gly Leu Val Thr Ala Leu Met Pro Thr Leu Leu Gly | | | |
| 50 55 60 | | | |
| atc gcc ctt gct ggt gct cac act gtt cct gcc tca gcc tgc ctt cta | 240 | | |
| Ile Ala Leu Ala Gly Ala His Thr Val Pro Ala Ser Ala Cys Leu Leu | | | |
| 65 70 75 80 | | | |
| cag atg gtt ttt atc cat gtc ttt tct gtc atg gag tcc tct gtc ttg | 288 | | |
| Gln Met Val Phe Ile His Val Phe Ser Val Met Glu Ser Ser Val Leu | | | |
| 85 90 95 | | | |
| ctc gcc atg tcc att gat cgg gca ctg gcc atc tgc cga cct ctc cac | 336 | | |
| Leu Ala Met Ser Ile Asp Arg Ala Leu Ala Ile Cys Arg Pro Leu His | | | |
| 100 105 110 | | | |
| tac cca gcg ctc ctc acc aat ggt gta att agc aaa atc agc ctg gcc | 384 | | |
| Tyr Pro Ala Leu Leu Thr Asn Gly Val Ile Ser Lys Ile Ser Leu Ala | | | |
| 115 120 125 | | | |
| att tct ttt cga tgc ctg ggt ctc cat ctg ccc ctg cca ttc ctg ctg | 432 | | |
| Ile Ser Phe Arg Cys Leu Gly Leu His Leu Pro Leu Pro Phe Leu Leu | | | |

| 130 | 135 | 140 | |
|---|-----|-----|-----|
| gcc tac atg ccc tac tgc cgc cca cag gtc cta acc cat tct tat tgc | | | 480 |
| Ala Tyr Met Pro Tyr Cys Arg Pro Gln Val Leu Thr His Ser Tyr Cys | | | |
| 145 | 150 | 155 | 160 |
| ttg cat cca gat gtg gct cgt ttg gcc tgc cca gaa gct tgg ggt gca | | | 528 |
| Leu His Pro Asp Val Ala Arg Leu Ala Cys Pro Glu Ala Trp Gly Ala | | | |
| | 165 | 170 | 175 |
| gcc tac agc cta ttt gtg gtt ctt tca gcc atg ggt ttg gac ccc ctg | | | 576 |
| Ala Tyr Ser Leu Phe Val Val Leu Ser Ala Met Gly Leu Asp Pro Leu | | | |
| | 180 | 185 | 190 |
| ctt att ttc ttc tcc tat ggc ctg att ggc aag gtg ttg caa ggt gtg | | | 624 |
| Leu Ile Phe Phe Ser Tyr Gly Leu Ile Gly Lys Val Leu Gln Gly Val | | | |
| | 195 | 200 | 205 |
| gag tcc aga gag gat cgc tgg aag gct ggt caa acc tgt gct gcc cac | | | 672 |
| Glu Ser Arg Glu Asp Arg Trp Lys Ala Gly Gln Thr Cys Ala Ala His | | | |
| | 210 | 215 | 220 |
| ctc tct gca gtg ctc ctc ttc tat atc cct atg atc ttc ccg gca ctg | | | 720 |
| Leu Ser Ala Val Leu Leu Phe Tyr Ile Pro Met Ile Phe Pro Ala Leu | | | |
| 225 | 230 | 235 | 240 |
| att aac cat cct gag ctg cca atc act cag cat acc cat act ctt cta | | | 768 |
| Ile Asn His Pro Glu Leu Pro Ile Thr Gln His Thr His Thr Leu Leu | | | |
| | 245 | 250 | 255 |
| tcc tat gtc cat ttc ctt ctt cct cca ttg ata aac cct att ctc tat | | | 816 |
| Ser Tyr Val His Phe Leu Leu Pro Pro Leu Ile Asn Pro Ile Leu Tyr | | | |
| | 260 | 265 | 270 |
| agt gtc aag atg aag gag att aga aag aga ata ctc aac agg ttg cag | | | 864 |
| Ser Val Lys Met Lys Glu Ile Arg Lys Arg Ile Leu Asn Arg Leu Gln | | | |
| | 275 | 280 | 285 |
| ccc agg aag gtg ggt ggt gct cag tga | | | 891 |
| Pro Arg Lys Val Gly Gly Ala Gln | | | |
| 290 | 295 | | |
| <210> 116 | | | |
| <211> 296 | | | |
| <212> PRT | | | |
| <213> Homo sapiens | | | |
| <400> 116 | | | |
| Leu Ser Gly Ala Pro Ser Trp Trp Thr Leu Pro Leu Ile Ala Val Tyr | | | |
| 1 | 5 | 10 | 15 |
| Leu Leu Ser Ala Leu Gly Asn Gly Thr Ile Leu Trp Ile Ile Ala Leu | | | |
| | 20 | 25 | 30 |
| Glu Pro Ala Leu His Arg Pro Met His Phe Phe Leu Phe Leu Leu Ser | | | |
| 35 | 40 | 45 | |

Val Ser Asp Ile Gly Leu Val Thr Ala Leu Met Pro Thr Leu Leu Gly
50 55 60
Ile Ala Leu Ala Gly Ala His Thr Val Pro Ala Ser Ala Cys Leu Leu
65 70 75 80
Gln Met Val Phe Ile His Val Phe Ser Val Met Glu Ser Ser Val Leu
85 90 95
Leu Ala Met Ser Ile Asp Arg Ala Leu Ala Ile Cys Arg Pro Leu His
100 105 110
Tyr Pro Ala Leu Leu Thr Asn Gly Val Ile Ser Lys Ile Ser Leu Ala
115 120 125
Ile Ser Phe Arg Cys Leu Gly Leu His Leu Pro Leu Pro Phe Leu Leu
130 135 140
Ala Tyr Met Pro Tyr Cys Arg Pro Gln Val Leu Thr His Ser Tyr Cys
145 150 155 160
Leu His Pro Asp Val Ala Arg Leu Ala Cys Pro Glu Ala Trp Gly Ala
165 170 175
Ala Tyr Ser Leu Phe Val Val Leu Ser Ala Met Gly Leu Asp Pro Leu
180 185 190
Leu Ile Phe Phe Ser Tyr Gly Leu Ile Gly Lys Val Leu Gln Gly Val
195 200 205
Glu Ser Arg Glu Asp Arg Trp Lys Ala Gly Gln Thr Cys Ala Ala His
210 215 220
Leu Ser Ala Val Leu Leu Phe Tyr Ile Pro Met Ile Phe Pro Ala Leu
225 230 235 240
Ile Asn His Pro Glu Leu Pro Ile Thr Gln His Thr His Thr Leu Leu
245 250 255
Ser Tyr Val His Phe Leu Leu Pro Pro Leu Ile Asn Pro Ile Leu Tyr
260 265 270
Ser Val Lys Met Lys Glu Ile Arg Lys Arg Ile Leu Asn Arg Leu Gln
275 280 285
Pro Arg Lys Val Gly Gly Ala Gln
290 295

<210> 117
<211> 947
<212> DNA
<213> Homo sapiens
<220>

<221> CDS

<222> (16)..(939)

<400> 117

| | |
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| attactcctg caata atg gca aat ctc aca atc gtg act gaa ttt atc ctc | 51 |
| Met Ala Asn Leu Thr Ile Val Thr Glu Phe Ile Leu | |
| 1 5 10 | |
| atg ggg ttt tct acc aat aaa aat atg tgc att ttg cat tcg att ctc | 99 |
| Met Gly Phe Ser Thr Asn Lys Asn Met Cys Ile Leu His Ser Ile Leu | |
| 15 20 25 | |
| ttc ttg ttg att tat ttg tgt gcc ctg atg ggg aat gtc ctc att atc | 147 |
| Phe Leu Leu Ile Tyr Leu Cys Ala Leu Met Gly Asn Val Leu Ile Ile | |
| 30 35 40 | |
| atg atc aca act ttg gac cat cat ctc cac acc ccc gtg tat ttc ttc | 195 |
| Met Ile Thr Thr Leu Asp His His Leu His Thr Pro Val Tyr Phe Phe | |
| 45 50 55 60 | |
| ttg aag aat cta tct ttc ttg gat ctc tgc ctt att tca gtc acg gct | 243 |
| Leu Lys Asn Leu Ser Phe Leu Asp Leu Cys Leu Ile Ser Val Thr Ala | |
| 65 70 75 | |
| ccc aaa tct atc gcc aat tct ttg ata cac aac aac tcc att tca ttc | 291 |
| Pro Lys Ser Ile Ala Asn Ser Leu Ile His Asn Asn Ser Ile Ser Phe | |
| 80 85 90 | |
| ctt ggc tgt gtt tcc cag gtc ttt ttg ttg ctt tct tca gca tct gca | 339 |
| Leu Gly Cys Val Ser Gln Val Phe Leu Leu Leu Ser Ser Ala Ser Ala | |
| 95 100 105 | |
| gag ctg ctc ctc ctc acg gtg atg tcc ttt gac cgc tat act gct ata | 387 |
| Glu Leu Leu Leu Leu Thr Val Met Ser Phe Asp Arg Tyr Thr Ala Ile | |
| 110 115 120 | |
| tgt cac cct ctg cac tat gat gtc atc atg gac agg agc acc tgt gtc | 435 |
| Cys His Pro Leu His Tyr Asp Val Ile Met Asp Arg Ser Thr Cys Val | |
| 125 130 135 140 | |
| caa aga gcc act gtg tct tgg ctg tat ggg ggt ctg att gct gtg atg | 483 |
| Gln Arg Ala Thr Val Ser Trp Leu Tyr Gly Gly Leu Ile Ala Val Met | |
| 145 150 155 | |
| cac aca gct ggc acc ttc tta tcc tac tgt ggg tcc aac atg gtc cat | 531 |
| His Thr Ala Gly Thr Phe Leu Ser Tyr Cys Gly Ser Asn Met Val His | |
| 160 165 170 | |
| cag ttc ttc tgt gac att ccc cag tta tta gct att tct tgc tca gaa | 579 |
| Gln Phe Phe Cys Asp Ile Pro Gln Leu Leu Ala Ile Ser Cys Ser Glu | |
| 175 180 185 | |
| aat tta ata aga gaa att gca ctc atc ctt att aat gta gtt ttg gat | 627 |
| Asn Leu Ile Arg Glu Ile Ala Leu Ile Leu Ile Asn Val Val Leu Asp | |
| 190 195 200 | |
| ttc tgc tgt ttt att gtc atc atc att acc tat gtc cac gtc ttc tct | 675 |

Phe Cys Cys Phe Ile Val Ile Ile Ile Thr Tyr Val His Val Phe Ser
 205 210 215 220
 aca gtc aag aag atc cct tcc aca gaa ggc cag tca aaa gcc tac tct 723
 Thr Val Lys Lys Ile Pro Ser Thr Glu Gly Gln Ser Lys Ala Tyr Ser
 225 230 235
 act tgc ctt cca cac ttg ctg gtt gtg tta ttt ctt tcc act gga ttc 771
 Thr Cys Leu Pro His Leu Leu Val Val Leu Phe Leu Ser Thr Gly Phe
 240 245 250
 att gct tat ctg aag cca gct tca gag tct cct tct att ttg gat gct 819
 Ile Ala Tyr Leu Lys Pro Ala Ser Glu Ser Pro Ser Ile Leu Asp Ala
 255 260 265
 gta att tct gtg ttc tac act atg ctg ccc cca acc ttt aat ccc att 867
 Val Ile Ser Val Phe Tyr Thr Met Leu Pro Pro Thr Phe Asn Pro Ile
 270 275 280
 ata tac agt ttg aga aac aag gcc ata aag gtg gct ctg ggg atg ttg 915
 Ile Tyr Ser Leu Arg Asn Lys Ala Ile Lys Val Ala Leu Gly Met Leu
 285 290 295 300
 ata aag gga aag ctc acc aaa aag taaaagct 947
 Ile Lys Gly Lys Leu Thr Lys Lys
 305

<210> 118
 <211> 308
 <212> PRT
 <213> Homo sapiens

<400> 118
 Met Ala Asn Leu Thr Ile Val Thr Glu Phe Ile Leu Met Gly Phe Ser
 1 5 10 15
 Thr Asn Lys Asn Met Cys Ile Leu His Ser Ile Leu Phe Leu Leu Ile
 20 25 30
 Tyr Leu Cys Ala Leu Met Gly Asn Val Leu Ile Ile Met Ile Thr Thr
 35 40 45
 Leu Asp His His Leu His Thr Pro Val Tyr Phe Phe Leu Lys Asn Leu
 50 55 60
 Ser Phe Leu Asp Leu Cys Leu Ile Ser Val Thr Ala Pro Lys Ser Ile
 65 70 75 80
 Ala Asn Ser Leu Ile His Asn Asn Ser Ile Ser Phe Leu Gly Cys Val
 85 90 95
 Ser Gln Val Phe Leu Leu Leu Ser Ser Ala Ser Ala Glu Leu Leu Leu
 100 105 110
 Leu Thr Val Met Ser Phe Asp Arg Tyr Thr Ala Ile Cys His Pro Leu
 115 120 125

His Tyr Asp Val Ile Met Asp Arg Ser Thr Cys Val Gln Arg Ala Thr
 130 135 140
 Val Ser Trp Leu Tyr Gly Gly Leu Ile Ala Val Met His Thr Ala Gly
 145 150 155 160
 Thr Phe Leu Ser Tyr Cys Gly Ser Asn Met Val His Gln Phe Phe Cys
 165 170 175
 Asp Ile Pro Gln Leu Leu Ala Ile Ser Cys Ser Glu Asn Leu Ile Arg
 180 185 190
 Glu Ile Ala Leu Ile Leu Ile Asn Val Val Leu Asp Phe Cys Cys Phe
 195 200 205
 Ile Val Ile Ile Ile Thr Tyr Val His Val Phe Ser Thr Val Lys Lys
 210 215 220
 Ile Pro Ser Thr Glu Gly Gln Ser Lys Ala Tyr Ser Thr Cys Leu Pro
 225 230 235 240
 His Leu Leu Val Val Leu Phe Leu Ser Thr Gly Phe Ile Ala Tyr Leu
 245 250 255
 Lys Pro Ala Ser Glu Ser Pro Ser Ile Leu Asp Ala Val Ile Ser Val
 260 265 270
 Phe Tyr Thr Met Leu Pro Pro Thr Phe Asn Pro Ile Ile Tyr Ser Leu
 275 280 285
 Arg Asn Lys Ala Ile Lys Val Ala Leu Gly Met Leu Ile Lys Gly Lys
 290 295 300
 Leu Thr Lys Lys
 305

<210> 119
 <211> 923
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(885)

<400> 119
 cta cag gta cta ttg ttt gcc ctt ttg ctg ctg gcc tat gtg ttg gtg 48
 Leu Gln Val Leu Leu Phe Ala Leu Leu Leu Leu Ala Tyr Val Leu Val
 1 5 10 15
 ctg act gag aac aca ctc atc att atg gca att agg aac cat tcc acc 96
 Leu Thr Glu Asn Thr Leu Ile Ile Met Ala Ile Arg Asn His Ser Thr
 20 25 30

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ctc | cac | aaa | ccc | atg | tac | ttt | ttt | cta | gct | aat | atg | tcc | ttt | ctg | gag | 144 |
| Leu | His | Lys | Pro | Met | Tyr | Phe | Phe | Leu | Ala | Asn | Met | Ser | Phe | Leu | Glu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| atc | tgg | tat | gtc | act | gtc | act | att | ccc | aag | atg | ctt | gct | ggc | ttt | gtt | 192 |
| Ile | Trp | Tyr | Val | Thr | Val | Thr | Ile | Pro | Lys | Met | Leu | Ala | Gly | Phe | Val | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| gga | tcc | aaa | cag | gat | cat | gga | cag | cta | atc | tcc | ttt | ggg | gga | tgc | atg | 240 |
| Gly | Ser | Lys | Gln | Asp | His | Gly | Gln | Leu | Ile | Ser | Phe | Gly | Gly | Cys | Met | |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| aca | cag | ctc | tac | ttt | ttc | ctt | ggc | ttg | ggc | tgc | act | gag | tgt | gtc | ctt | 288 |
| Thr | Gln | Leu | Tyr | Phe | Phe | Leu | Gly | Leu | Gly | Cys | Thr | Glu | Cys | Val | Leu | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| ctc | gct | gtt | atg | gcc | tat | gat | cgc | tat | atg | gcc | atc | tgc | tat | cct | ctc | 336 |
| Leu | Ala | Val | Met | Ala | Tyr | Asp | Arg | Tyr | Met | Ala | Ile | Cys | Tyr | Pro | Leu | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| cac | tac | cca | gtc | att | gtc | agt | ggc | cgg | ctg | tgt | gtg | cag | atg | gct | gct | 384 |
| His | Tyr | Pro | Val | Ile | Val | Ser | Gly | Arg | Leu | Cys | Val | Gln | Met | Ala | Ala | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| ggc | tct | tgg | gct | gga | ggg | ttt | ggc | atc | tcc | atg | gtc | aaa | gtt | ttt | ctt | 432 |
| Gly | Ser | Trp | Ala | Gly | Gly | Phe | Gly | Ile | Ser | Met | Val | Lys | Val | Phe | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| att | tct | ggc | ctc | tct | tac | tgt | ggc | ccc | aac | atc | atc | aac | cac | ttt | ttc | 480 |
| Ile | Ser | Gly | Leu | Ser | Tyr | Cys | Gly | Pro | Asn | Ile | Ile | Asn | His | Phe | Phe | |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| tgt | gat | gtc | tct | cca | ttg | ctc | aac | ctc | tca | tgc | act | gat | atg | tcc | aca | 528 |
| Cys | Asp | Val | Ser | Pro | Leu | Leu | Asn | Leu | Ser | Cys | Thr | Asp | Met | Ser | Thr | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| gca | gag | ctt | aca | gat | ttc | atc | ctg | gcc | att | ttt | att | ctt | cta | ggg | cca | 576 |
| Ala | Glu | Leu | Thr | Asp | Phe | Ile | Leu | Ala | Ile | Phe | Ile | Leu | Leu | Gly | Pro | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| ctc | tct | gtc | act | ggg | gcc | tcc | tat | gtg | gcc | att | act | ggg | gct | gtg | atg | 624 |
| Leu | Ser | Val | Thr | Gly | Ala | Ser | Tyr | Val | Ala | Ile | Thr | Gly | Ala | Val | Met | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| cac | att | cct | tcg | gct | gct | gga | cgc | tat | aag | gcc | ttt | tcc | acc | tgt | gcc | 672 |
| His | Ile | Pro | Ser | Ala | Ala | Gly | Arg | Tyr | Lys | Ala | Phe | Ser | Thr | Cys | Ala | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| tct | cat | ctc | act | gtt | gtg | ata | atc | ttc | tat | gca | gcc | agt | atc | ttc | atc | 720 |
| Ser | His | Leu | Thr | Val | Val | Ile | Ile | Phe | Tyr | Ala | Ala | Ser | Ile | Phe | Ile | |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 | |
| tat | gct | cgg | cca | aag | gca | ctc | tca | gct | ttt | gac | acc | aac | aag | ttg | gtc | 768 |
| Tyr | Ala | Arg | Pro | Lys | Ala | Leu | Ser | Ala | Phe | Asp | Thr | Asn | Lys | Leu | Val | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| tct | gta | ctg | tat | gct | gtc | att | gta | cca | ttg | ctc | aat | ccc | atc | att | tac | 816 |

Ser Val Leu Tyr Ala Val Ile Val Pro Leu Leu Asn Pro Ile Ile Tyr
260 265 270

tgc ctg agc aat caa gag gtc aag aga gcc cta tgc tgt act ctg caa 864
Cys Leu Ser Asn Gln Glu Val Lys Arg Ala Leu Cys Cys Thr Leu Gln
275 280 285

cct gta cca gca cca gga tcc tgaccccaag aaagctagca gaaatgtata 915
Pro Val Pro Ala Pro Gly Ser
290 295

gaagggat 923

<210> 120
<211> 295
<212> PRT
<213> Homo sapiens

<400> 120
Leu Gln Val Leu Leu Phe Ala Leu Leu Leu Leu Ala Tyr Val Leu Val
1 5 10 15

Leu Thr Glu Asn Thr Leu Ile Ile Met Ala Ile Arg Asn His Ser Thr
20 25 30

Leu His Lys Pro Met Tyr Phe Phe Leu Ala Asn Met Ser Phe Leu Glu
35 40 45

Ile Trp Tyr Val Thr Val Thr Ile Pro Lys Met Leu Ala Gly Phe Val
50 55 60

Gly Ser Lys Gln Asp His Gly Gln Leu Ile Ser Phe Gly Gly Cys Met
65 70 75 80

Thr Gln Leu Tyr Phe Phe Leu Gly Leu Gly Cys Thr Glu Cys Val Leu
85 90 95

Leu Ala Val Met Ala Tyr Asp Arg Tyr Met Ala Ile Cys Tyr Pro Leu
100 105 110

His Tyr Pro Val Ile Val Ser Gly Arg Leu Cys Val Gln Met Ala Ala
115 120 125

Gly Ser Trp Ala Gly Gly Phe Gly Ile Ser Met Val Lys Val Phe Leu
130 135 140

Ile Ser Gly Leu Ser Tyr Cys Gly Pro Asn Ile Ile Asn His Phe Phe
145 150 155 160

Cys Asp Val Ser Pro Leu Leu Asn Leu Ser Cys Thr Asp Met Ser Thr
165 170 175

Ala Glu Leu Thr Asp Phe Ile Leu Ala Ile Phe Ile Leu Leu Gly Pro
180 185 190

Leu Ser Val Thr Gly Ala Ser Tyr Val Ala Ile Thr Gly Ala Val Met

| | | |
|---|-----|---------|
| 195 | 200 | 205 |
| His Ile Pro Ser Ala Ala Gly Arg Tyr Lys Ala Phe Ser Thr Cys Ala | | |
| 210 | 215 | 220 |
| Ser His Leu Thr Val Val Ile Ile Phe Tyr Ala Ala Ser Ile Phe Ile | | |
| 225 | 230 | 235 240 |
| Tyr Ala Arg Pro Lys Ala Leu Ser Ala Phe Asp Thr Asn Lys Leu Val | | |
| | 245 | 250 255 |
| Ser Val Leu Tyr Ala Val Ile Val Pro Leu Leu Asn Pro Ile Ile Tyr | | |
| | 260 | 265 270 |
| Cys Leu Ser Asn Gln Glu Val Lys Arg Ala Leu Cys Cys Thr Leu Gln | | |
| | 275 | 280 285 |
| Pro Val Pro Ala Pro Gly Ser | | |
| 290 | 295 | |

<210> 121
 <211> 945
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (6)..(935)

<400> 121
 atcct atg gaa cca cag aac acc aca cag gta tca atg ttt gtc ctc tta 50
 Met Glu Pro Gln Asn Thr Thr Gln Val Ser Met Phe Val Leu Leu
 1 5 10 15

ggg ttt tca cag acc caa gag ctc cag aaa ttc ctg ttc ctt ctg ttc 98
 Gly Phe Ser Gln Thr Gln Glu Leu Gln Lys Phe Leu Phe Leu Leu Phe
 20 25 30

ctg tta gtc tat gtt acc acc att gtg gga aac ctc ctt atc atg gtc 146
 Leu Leu Val Tyr Val Thr Thr Ile Val Gly Asn Leu Leu Ile Met Val
 35 40 45

aca gtg act ttt gac tgc cgg ctc cac aca ccc atg tat ttt ctg ctc 194
 Thr Val Thr Phe Asp Cys Arg Leu His Thr Pro Met Tyr Phe Leu Leu
 50 55 60

cga aat cta gct ctc ata gac ctc tgc tat tcc aca gtc acc tct cca 242
 Arg Asn Leu Ala Leu Ile Asp Leu Cys Tyr Ser Thr Val Thr Ser Pro
 65 70 75

aag atg ctg gtg gac ttc ctc cat gag acc aag acg atc tcc tac cag 290
 Lys Met Leu Val Asp Phe Leu His Glu Thr Lys Thr Ile Ser Tyr Gln
 80 85 90 95

ggc tgc atg gcc cag atc ttc ttc ttc cac ctt ttg gga ggt ggg act 338

| | |
|---|-----|
| Gly Cys Met Ala Gln Ile Phe Phe Phe His Leu Leu Gly Gly Gly Thr | |
| 100 105 110 | |
| gtc ttt ttt ctc tca gtc atg gcc tat gac cgc tac ata gcc atc tcc | 386 |
| Val Phe Phe Leu Ser Val Met Ala Tyr Asp Arg Tyr Ile Ala Ile Ser | |
| 115 120 125 | |
| cag ccc ctc cgg tat gtc acc atc atg aac act caa ttg tgt gtg ggc | 434 |
| Gln Pro Leu Arg Tyr Val Thr Ile Met Asn Thr Gln Leu Cys Val Gly | |
| 130 135 140 | |
| ctg gta gta gcc gcc tgg gtg ggg ggc ttt gtc cac tcc att gtc caa | 482 |
| Leu Val Val Ala Ala Trp Val Gly Gly Phe Val His Ser Ile Val Gln | |
| 145 150 155 | |
| ctg gct ctg ata ctt cca ctg ccc ttc tgt ggc ccc aat atc ata gat | 530 |
| Leu Ala Leu Ile Leu Pro Leu Pro Phe Cys Gly Pro Asn Ile Ile Asp | |
| 160 165 170 175 | |
| aac ttc tac tgt gat gtt ccc caa gta ctg aga ctt gcc tgc act gat | 578 |
| Asn Phe Tyr Cys Asp Val Pro Gln Val Leu Arg Leu Ala Cys Thr Asp | |
| 180 185 190 | |
| acc tcc ctc ctg gag ttc ctc atg atc tcc aac agt ggg ctg cta gtt | 626 |
| Thr Ser Leu Leu Glu Phe Leu Met Ile Ser Asn Ser Gly Leu Leu Val | |
| 195 200 205 | |
| atc atc tgg ttc ctc ctc ctt ctg atc tct tat act gtc atc ctg gtg | 674 |
| Ile Ile Trp Phe Leu Leu Leu Leu Ile Ser Tyr Thr Val Ile Leu Val | |
| 210 215 220 | |
| atg ctg agg tcc cac tcg gga aag gca agg agg aag gca gct tcc acc | 722 |
| Met Leu Arg Ser His Ser Gly Lys Ala Arg Arg Lys Ala Ala Ser Thr | |
| 225 230 235 | |
| tgc acc acc cac atc atc gtg gtg tcc atg atc ttc att ccc tgt atc | 770 |
| Cys Thr Thr His Ile Ile Val Val Ser Met Ile Phe Ile Pro Cys Ile | |
| 240 245 250 255 | |
| tat atc tat acc tgg ccc ttc acc cca ttc ctc ata gac aag gct gtg | 818 |
| Tyr Ile Tyr Thr Trp Pro Phe Thr Pro Phe Leu Ile Asp Lys Ala Val | |
| 260 265 270 | |
| tcc atc agc tac aca gtc atg acc ccc atg ctc aac ccc atg atc tac | 866 |
| Ser Ile Ser Tyr Thr Val Met Thr Pro Met Leu Asn Pro Met Ile Tyr | |
| 275 280 285 | |
| aac ctg aga aac cag gac atg aaa gca gcc atg agg aga tta ggc aag | 914 |
| Asn Leu Arg Asn Gln Asp Met Lys Ala Ala Met Arg Arg Leu Gly Lys | |
| 290 295 300 | |
| tgc cta gta att tgc agg gag taaactttaa | 945 |
| Cys Leu Val Ile Cys Arg Glu | |
| 305 310 | |

<211> 310
 <212> PRT
 <213> Homo sapiens

<400> 122

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Pro | Gln | Asn | Thr | Thr | Gln | Val | Ser | Met | Phe | Val | Leu | Leu | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Phe | Ser | Gln | Thr | Gln | Glu | Leu | Gln | Lys | Phe | Leu | Phe | Leu | Leu | Phe | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Val | Tyr | Val | Thr | Thr | Ile | Val | Gly | Asn | Leu | Leu | Ile | Met | Val | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Thr | Phe | Asp | Cys | Arg | Leu | His | Thr | Pro | Met | Tyr | Phe | Leu | Leu | Arg |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asn | Leu | Ala | Leu | Ile | Asp | Leu | Cys | Tyr | Ser | Thr | Val | Thr | Ser | Pro | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Met | Leu | Val | Asp | Phe | Leu | His | Glu | Thr | Lys | Thr | Ile | Ser | Tyr | Gln | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Cys | Met | Ala | Gln | Ile | Phe | Phe | Phe | His | Leu | Leu | Gly | Gly | Gly | Thr | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Phe | Leu | Ser | Val | Met | Ala | Tyr | Asp | Arg | Tyr | Ile | Ala | Ile | Ser | Gln |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Pro | Leu | Arg | Tyr | Val | Thr | Ile | Met | Asn | Thr | Gln | Leu | Cys | Val | Gly | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Val | Ala | Ala | Trp | Val | Gly | Gly | Phe | Val | His | Ser | Ile | Val | Gln | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Ala | Leu | Ile | Leu | Pro | Leu | Pro | Phe | Cys | Gly | Pro | Asn | Ile | Ile | Asp | Asn |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Phe | Tyr | Cys | Asp | Val | Pro | Gln | Val | Leu | Arg | Leu | Ala | Cys | Thr | Asp | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Leu | Leu | Glu | Phe | Leu | Met | Ile | Ser | Asn | Ser | Gly | Leu | Leu | Val | Ile |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ile | Trp | Phe | Leu | Leu | Leu | Leu | Ile | Ser | Tyr | Thr | Val | Ile | Leu | Val | Met |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Arg | Ser | His | Ser | Gly | Lys | Ala | Arg | Arg | Lys | Ala | Ala | Ser | Thr | Cys |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Thr | Thr | His | Ile | Ile | Val | Val | Ser | Met | Ile | Phe | Ile | Pro | Cys | Ile | Tyr |
| | | | 245 | | | | | | 250 | | | | 255 | | |
| Ile | Tyr | Thr | Trp | Pro | Phe | Thr | Pro | Phe | Leu | Ile | Asp | Lys | Ala | Val | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | Ser | Tyr | Thr | Val | Met | Thr | Pro | Met | Leu | Asn | Pro | Met | Ile | Tyr | Asn |

275

280

285

Leu Arg Asn Gln Asp Met Lys Ala Ala Met Arg Arg Leu Gly Lys Cys
 290 295 300

Leu Val Ile Cys Arg Glu
 305 310

<210> 123

<211> 952

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1) .. (945)

<400> 123

atg ttc tcc cca aac cac acc ata gtg aca gaa ttc att ctc ttg gga 48
 Met Phe Ser Pro Asn His Thr Ile Val Thr Glu Phe Ile Leu Leu Gly
 1 5 10 15

ctg aca gac gac cca gtg cta gag aag atc ctg ttt ggg gta ttc ctt 96
 Leu Thr Asp Asp Pro Val Leu Glu Lys Ile Leu Phe Gly Val Phe Leu
 20 25 30

gcg atc tac cta atc aca ctg gca ggc aac ctg tgc atg atc ctg ctg 144
 Ala Ile Tyr Leu Ile Thr Leu Ala Gly Asn Leu Cys Met Ile Leu Leu
 35 40 45

atc agg acc aat tcc cac ctg caa aca ccc atg tat ttc ttc ctt ggc 192
 Ile Arg Thr Asn Ser His Leu Gln Thr Pro Met Tyr Phe Phe Leu Gly
 50 55 60

cac ctc tcc ttt gta gac att tgc tat tct tcc aat gtt act cca aat 240
 His Leu Ser Phe Val Asp Ile Cys Tyr Ser Ser Asn Val Thr Pro Asn
 65 70 75 80

atg ctg cac aat ttc ctc tca gaa cag aag acc atc tcc tac gct gga 288
 Met Leu His Asn Phe Leu Ser Glu Gln Lys Thr Ile Ser Tyr Ala Gly
 85 90 95

tgc ttc aca cag tgt ctt ctc ttc atc gcc ctg gtg atc act gag ttt 336
 Cys Phe Thr Gln Cys Leu Leu Phe Ile Ala Leu Val Ile Thr Glu Phe
 100 105 110

tac atc ctt gct tca atg gca ttg gat cgc tat gta gcc att tgc agc 384
 Tyr Ile Leu Ala Ser Met Ala Leu Asp Arg Tyr Val Ala Ile Cys Ser
 115 120 125

cct ttg cat tac agt tcc agg atg tcc aag aac atc tgt gtc tgt ctg 432
 Pro Leu His Tyr Ser Ser Arg Met Ser Lys Asn Ile Cys Val Cys Leu
 130 135 140

gtc act atc cct tac atg tat ggg ttt ctt agt ggg ttc tct cag tca 480

| 35 | | | | | 40 | | | | | 45 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Arg | Thr | Asn | Ser | His | Leu | Gln | Thr | Pro | Met | Tyr | Phe | Phe | Leu | Gly |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| His | Leu | Ser | Phe | Val | Asp | Ile | Cys | Tyr | Ser | Ser | Asn | Val | Thr | Pro | Asn |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Met | Leu | His | Asn | Phe | Leu | Ser | Glu | Gln | Lys | Thr | Ile | Ser | Tyr | Ala | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Cys | Phe | Thr | Gln | Cys | Leu | Leu | Phe | Ile | Ala | Leu | Val | Ile | Thr | Glu | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Ile | Leu | Ala | Ser | Met | Ala | Leu | Asp | Arg | Tyr | Val | Ala | Ile | Cys | Ser |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Pro | Leu | His | Tyr | Ser | Ser | Arg | Met | Ser | Lys | Asn | Ile | Cys | Val | Cys | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Thr | Ile | Pro | Tyr | Met | Tyr | Gly | Phe | Leu | Ser | Gly | Phe | Ser | Gln | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Leu | Thr | Phe | His | Leu | Ser | Phe | Cys | Gly | Ser | Leu | Glu | Ile | Asn | His |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Phe | Tyr | Cys | Ala | Asp | Pro | Pro | Leu | Ile | Met | Leu | Ala | Cys | Ser | Asp | Thr |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Arg | Val | Lys | Lys | Met | Ala | Met | Phe | Val | Val | Ala | Gly | Phe | Asn | Leu | Ser |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ser | Ser | Leu | Phe | Ile | Ile | Leu | Leu | Ser | Tyr | Leu | Phe | Ile | Phe | Ala | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Phe | Arg | Ile | Arg | Ser | Ala | Glu | Gly | Arg | His | Lys | Ala | Phe | Ser | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Cys | Ala | Ser | His | Leu | Thr | Ile | Val | Thr | Leu | Phe | Tyr | Gly | Thr | Leu | Phe |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Cys | Met | Tyr | Val | Arg | Pro | Pro | Ser | Glu | Lys | Ser | Val | Glu | Glu | Ser | Lys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | Thr | Ala | Val | Phe | Tyr | Thr | Phe | Leu | Ser | Pro | Met | Leu | Asn | Pro | Leu |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Ile | Tyr | Ser | Leu | Arg | Asn | Thr | Asp | Val | Ile | Leu | Ala | Met | Gln | Gln | Met |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ile | Arg | Gly | Lys | Ser | Phe | His | Lys | Ile | Ala | Val | | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | |

<210> 125

<211> 952

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(945)

<400> 125

| | |
|---|-----|
| atg ttc tcc cca aac cac acc ata gtg aca gaa ttc att ctc ttg gga | 48 |
| Met Phe Ser Pro Asn His Thr Ile Val Thr Glu Phe Ile Leu Leu Gly | |
| 1 5 10 15 | |
| ctg aca gac gac cca gtg cta gag aag atc ctg ttt ggg gta ttc ctt | 96 |
| Leu Thr Asp Asp Pro Val Leu Glu Lys Ile Leu Phe Gly Val Phe Leu | |
| 20 25 30 | |
| gcg atc tac cta atc aca ctg gca ggc aac ctg tgc atg atc ctg ctg | 144 |
| Ala Ile Tyr Leu Ile Thr Leu Ala Gly Asn Leu Cys Met Ile Leu Leu | |
| 35 40 45 | |
| atc agg acc aat tcc cac ctg caa aca ccc atg tat ttc ttc ctt ggc | 192 |
| Ile Arg Thr Asn Ser His Leu Gln Thr Pro Met Tyr Phe Phe Leu Gly | |
| 50 55 60 | |
| cac ctc tcc ttt gta gac att tgc tat tct tcc aat gtt act cca aat | 240 |
| His Leu Ser Phe Val Asp Ile Cys Tyr Ser Ser Asn Val Thr Pro Asn | |
| 65 70 75 80 | |
| atg ctg cac aat ttc ctc tca gaa cag aag acc atc tcc tac gct gga | 288 |
| Met Leu His Asn Phe Leu Ser Glu Gln Lys Thr Ile Ser Tyr Ala Gly | |
| 85 90 95 | |
| tgc ttc aca cag tgt ctt ctc ttc atc gcc ctg gtg atc act gag ttt | 336 |
| Cys Phe Thr Gln Cys Leu Leu Phe Ile Ala Leu Val Ile Thr Glu Phe | |
| 100 105 110 | |
| tac atc ctt gct tca atg gca ttg gat cgc tat gta gcc att tgc agc | 384 |
| Tyr Ile Leu Ala Ser Met Ala Leu Asp Arg Tyr Val Ala Ile Cys Ser | |
| 115 120 125 | |
| cct ttg cat tac agt tcc agg atg tcc aag aac atc tgt gtc tgt ctg | 432 |
| Pro Leu His Tyr Ser Ser Arg Met Ser Lys Asn Ile Cys Val Cys Leu | |
| 130 135 140 | |
| gtc act atc cct tac atg tat ggg ttt ctt agt ggg ttc tct cag tca | 480 |
| Val Thr Ile Pro Tyr Met Tyr Gly Phe Leu Ser Gly Phe Ser Gln Ser | |
| 145 150 155 160 | |
| ctg cta acc ttt cac tta tcc ttc tgt ggc tcc ctt gaa atc aat cat | 528 |
| Leu Leu Thr Phe His Leu Ser Phe Cys Gly Ser Leu Glu Ile Asn His | |
| 165 170 175 | |
| ttc tac tgc gct gat cct cct ctt atc atg ctg gcc tgc tct gac acc | 576 |
| Phe Tyr Cys Ala Asp Pro Pro Leu Ile Met Leu Ala Cys Ser Asp Thr | |
| 180 185 190 | |
| cgt gtc aaa aag atg gca atg ttt gta gtt gca ggc ttt aat ctc tca | 624 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|
| Arg | Val | Lys | Lys | Met | Ala | Met | Phe | Val | Val | Ala | Gly | Phe | Asn | Leu | Ser | |
| | 195 | | | | | | 200 | | | | | 205 | | | | |
| agc | tct | ctc | ttc | atc | att | ctt | ctg | tcc | tat | ctt | ttc | att | ttt | gca | gcg | 672 |
| Ser | Ser | Leu | Phe | Ile | Ile | Leu | Leu | Ser | Tyr | Leu | Phe | Ile | Phe | Ala | Ala | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| atc | ttc | agg | atc | cgt | tct | gct | gaa | ggc | agg | cac | aaa | gcc | ttt | tct | acg | 720 |
| Ile | Phe | Arg | Ile | Arg | Ser | Ala | Glu | Gly | Arg | His | Lys | Ala | Phe | Ser | Thr | |
| 225 | | | | | 230 | | | | 235 | | | | | 240 | | |
| tgt | gct | tcc | cac | ctg | aca | ata | gtc | act | ttg | ttt | tat | gga | acc | ctc | ttc | 768 |
| Cys | Ala | Ser | His | Leu | Thr | Ile | Val | Thr | Leu | Phe | Tyr | Gly | Thr | Leu | Phe | |
| | | | 245 | | | | | 250 | | | | | | 255 | | |
| tgc | atg | tac | gta | agg | cct | cca | tca | gag | aag | tct | gta | gag | gag | tcc | aaa | 816 |
| Cys | Met | Tyr | Val | Arg | Pro | Pro | Ser | Glu | Lys | Ser | Val | Glu | Glu | Ser | Lys | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| ata | act | gca | gtc | ttt | tat | act | ttt | ttg | agc | cca | atg | ctg | aac | cca | ttg | 864 |
| Ile | Thr | Ala | Val | Phe | Tyr | Thr | Phe | Leu | Ser | Pro | Met | Leu | Asn | Pro | Leu | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| atc | tat | agc | cta | cgg | aac | aca | gat | gta | atc | ctt | gcc | atg | caa | caa | atg | 912 |
| Ile | Tyr | Ser | Leu | Arg | Asn | Thr | Asp | Val | Ile | Leu | Ala | Met | Gln | Gln | Met | |
| | 290 | | | | 295 | | | | | | 300 | | | | | |
| att | agg | gga | aaa | tcc | ttt | cat | aaa | att | gca | gtt | taggctt | | | | | 952 |
| Ile | Arg | Gly | Lys | Ser | Phe | His | Lys | Ile | Ala | Val | | | | | | |
| 305 | | | | | 310 | | | | 315 | | | | | | | |

<210> 126
 <211> 315
 <212> PRT
 <213> Homo sapiens

<400> 126
 Met Phe Ser Pro Asn His Thr Ile Val Thr Glu Phe Ile Leu Leu Gly
 1 5 10 15
 Leu Thr Asp Asp Pro Val Leu Glu Lys Ile Leu Phe Gly Val Phe Leu
 20 25 30
 Ala Ile Tyr Leu Ile Thr Leu Ala Gly Asn Leu Cys Met Ile Leu Leu
 35 40 45
 Ile Arg Thr Asn Ser His Leu Gln Thr Pro Met Tyr Phe Phe Leu Gly
 50 55 60
 His Leu Ser Phe Val Asp Ile Cys Tyr Ser Ser Asn Val Thr Pro Asn
 65 70 75 80
 Met Leu His Asn Phe Leu Ser Glu Gln Lys Thr Ile Ser Tyr Ala Gly
 85 90 95
 Cys Phe Thr Gln Cys Leu Leu Phe Ile Ala Leu Val Ile Thr Glu Phe

| 100 | 105 | 110 |
|--|-----|-----|
| Tyr Ile Leu Ala Ser Met Ala Leu Asp Arg Tyr Val Ala Ile Cys Ser 115 120 125 | | |
| Pro Leu His Tyr Ser Ser Arg Met Ser Lys Asn Ile Cys Val Cys Leu 130 135 140 | | |
| Val Thr Ile Pro Tyr Met Tyr Gly Phe Leu Ser Gly Phe Ser Gln Ser 145 150 155 160 | | |
| Leu Leu Thr Phe His Leu Ser Phe Cys Gly Ser Leu Glu Ile Asn His 165 170 175 | | |
| Phe Tyr Cys Ala Asp Pro Pro Leu Ile Met Leu Ala Cys Ser Asp Thr 180 185 190 | | |
| Arg Val Lys Lys Met Ala Met Phe Val Val Ala Gly Phe Asn Leu Ser 195 200 205 | | |
| Ser Ser Leu Phe Ile Ile Leu Leu Ser Tyr Leu Phe Ile Phe Ala Ala 210 215 220 | | |
| Ile Phe Arg Ile Arg Ser Ala Glu Gly Arg His Lys Ala Phe Ser Thr 225 230 235 240 | | |
| Cys Ala Ser His Leu Thr Ile Val Thr Leu Phe Tyr Gly Thr Leu Phe 245 250 255 | | |
| Cys Met Tyr Val Arg Pro Pro Ser Glu Lys Ser Val Glu Glu Ser Lys 260 265 270 | | |
| Ile Thr Ala Val Phe Tyr Thr Phe Leu Ser Pro Met Leu Asn Pro Leu 275 280 285 | | |
| Ile Tyr Ser Leu Arg Asn Thr Asp Val Ile Leu Ala Met Gln Gln Met 290 295 300 | | |
| Ile Arg Gly Lys Ser Phe His Lys Ile Ala Val 305 310 315 | | |

<210> 127

<211> 938

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (9) .. (935)

<400> 127

| | | |
|----------|---|----|
| tggaatcc | atg gcc agt aca agt aat gtg act gag ttg att ttc act ggc | 50 |
| | Met Ala Ser Thr Ser Asn Val Thr Glu Leu Ile Phe Thr Gly | |
| 1 | 5 | 10 |

| | |
|---|-----|
| ctt ttc cag gat cca gcg gtg cag agt gta tgc ttt gtg gtg ttt ctc | 98 |
| Leu Phe Gln Asp Pro Ala Val Gln Ser Val Cys Phe Val Val Phe Leu | |
| 15 20 25 30 | |
| ccc gtg tac ctt gcc gcg gtg gtg ggc aat ggc ctc atc gtt ctg acg | 146 |
| Pro Val Tyr Leu Ala Ala Val Val Gly Asn Gly Leu Ile Val Leu Thr | |
| 35 40 45 | |
| gtc agt atc agc aag agt ctg gat tct ccc atg tac ttc ttc ctt agc | 194 |
| Val Ser Ile Ser Lys Ser Leu Asp Ser Pro Met Tyr Phe Phe Leu Ser | |
| 50 55 60 | |
| tac ctg tcc ttg gtg gag atc agt tat tcc tcc act atc gcc cct aaa | 242 |
| Tyr Leu Ser Leu Val Glu Ile Ser Tyr Ser Ser Thr Ile Ala Pro Lys | |
| 65 70 75 | |
| ttc atc ata gac tta ctt gcc aag att aaa acc atc tct ctg gaa ggc | 290 |
| Phe Ile Ile Asp Leu Leu Ala Lys Ile Lys Thr Ile Ser Leu Glu Gly | |
| 80 85 90 | |
| tgt ctg act cag ata ttc ttc ttc cac ttc ttt ggg gtt gct gag atc | 338 |
| Cys Leu Thr Gln Ile Phe Phe Phe His Phe Phe Gly Val Ala Glu Ile | |
| 95 100 105 110 | |
| ctt ttg att gtg gtg atg gcc tat gat tgc tac gtg gcc att tgc aag | 386 |
| Leu Leu Ile Val Val Met Ala Tyr Asp Cys Tyr Val Ala Ile Cys Lys | |
| 115 120 125 | |
| cct ctt cat tat atg aac att atc agt cgt caa ctg tgt cac ctt ctg | 434 |
| Pro Leu His Tyr Met Asn Ile Ile Ser Arg Gln Leu Cys His Leu Leu | |
| 130 135 140 | |
| gtg gct ggt tcc tgg ctg ggg ggc ttt tgt cac tcc ata att cag att | 482 |
| Val Ala Gly Ser Trp Leu Gly Gly Phe Cys His Ser Ile Ile Gln Ile | |
| 145 150 155 | |
| ctc gtt atc atc caa ttg ccc ttc tgt ggt ccc aat gtg att gac cac | 530 |
| Leu Val Ile Ile Gln Leu Pro Phe Cys Gly Pro Asn Val Ile Asp His | |
| 160 165 170 | |
| tat ttc tgt gac ctc cag cct tta ttc aag ctt gcc tgc act gac acc | 578 |
| Tyr Phe Cys Asp Leu Gln Pro Leu Phe Lys Leu Ala Cys Thr Asp Thr | |
| 175 180 185 190 | |
| ttc atg gag ggg gtt att gtg ttg gcc aac agt gga tta ttc tct gtc | 626 |
| Phe Met Glu Gly Val Ile Val Leu Ala Asn Ser Gly Leu Phe Ser Val | |
| 195 200 205 | |
| ttc tcc ttc ctc atc ttg gtg tcc tct tat att gtc att ctg gtc aac | 674 |
| Phe Ser Phe Leu Ile Leu Val Ser Ser Tyr Ile Val Ile Leu Val Asn | |
| 210 215 220 | |
| ttg agg aac cat tct gca gag ggg agg cac aaa gcc ctc tcc acc tgt | 722 |
| Leu Arg Asn His Ser Ala Glu Gly Arg His Lys Ala Leu Ser Thr Cys | |
| 225 230 235 | |
| gct tct cac atc aca gtg gtc atc ttg ttt ttt gga cct gct atc ttc | 770 |

Ala Ser His Ile Thr Val Val Ile Leu Phe Phe Gly Pro Ala Ile Phe
240 245 250

ctc tac atg cga cct tct tcc act ttc act gaa gat aaa ctt gtg gct 818
Leu Tyr Met Arg Pro Ser Ser Thr Phe Thr Glu Asp Lys Leu Val Ala
255 260 265 270

gta ttc tac atg gtc atc acc ccc atg ctg aac ccc atc att tac aca 866
Val Phe Tyr Met Val Ile Thr Pro Met Leu Asn Pro Ile Ile Tyr Thr
275 280 285

ctc agg aat gca gag gtg aaa atc gcc ata aga aga ttg tgg agc aaa 914
Leu Arg Asn Ala Glu Val Lys Ile Ala Ile Arg Arg Leu Trp Ser Lys
290 295 300

aag gag aat cca ggg agg gag tga 938
Lys Glu Asn Pro Gly Arg Glu
305

<210> 128
<211> 309
<212> PRT
<213> Homo sapiens

<400> 128
Met Ala Ser Thr Ser Asn Val Thr Glu Leu Ile Phe Thr Gly Leu Phe
1 5 10 15

Gln Asp Pro Ala Val Gln Ser Val Cys Phe Val Val Phe Leu Pro Val
20 25 30

Tyr Leu Ala Ala Val Val Gly Asn Gly Leu Ile Val Leu Thr Val Ser
35 40 45

Ile Ser Lys Ser Leu Asp Ser Pro Met Tyr Phe Phe Leu Ser Tyr Leu
50 55 60

Ser Leu Val Glu Ile Ser Tyr Ser Ser Thr Ile Ala Pro Lys Phe Ile
65 70 75 80

Ile Asp Leu Leu Ala Lys Ile Lys Thr Ile Ser Leu Glu Gly Cys Leu
85 90 95

Thr Gln Ile Phe Phe Phe His Phe Phe Gly Val Ala Glu Ile Leu Leu
100 105 110

Ile Val Val Met Ala Tyr Asp Cys Tyr Val Ala Ile Cys Lys Pro Leu
115 120 125

His Tyr Met Asn Ile Ile Ser Arg Gln Leu Cys His Leu Leu Val Ala
130 135 140

Gly Ser Trp Leu Gly Gly Phe Cys His Ser Ile Ile Gln Ile Leu Val
145 150 155 160

Ile Ile Gln Leu Pro Phe Cys Gly Pro Asn Val Ile Asp His Tyr Phe

Met Leu Val Asp Leu Leu Ser Gln Lys Lys Thr Ile Ser Phe Leu Gly
 85 90 95
 Cys Ala Ile Gln Met Phe Ser Phe Leu Phe Leu Gly Cys Ser His Ser
 100 105 110
 Phe Leu Leu Ala Val Met Gly Tyr Asp Arg Tyr Ile Ala Ile Cys Asn
 115 120 125
 Pro Leu Arg Tyr Ser Val Leu Met Gly His Gly Val Cys Met Gly Leu
 130 135 140
 Val Ala Ala Ala Cys Ala Cys Gly Phe Thr Val Ala Gln Ile Ile Thr
 145 150 155 160
 Ser Leu Val Phe His Leu Pro Phe Tyr Ser Ser Asn Gln Leu His His
 165 170 175
 Phe Phe Cys Asp Ile Ala Pro Val Leu Lys Leu Ala Ser His His Asn
 180 185 190
 His Phe Ser Gln Ile Val Ile Phe Met Leu Cys Thr Leu Val Leu Ala
 195 200 205
 Ile Pro Leu Leu Leu Ile Leu Val Ser Tyr Val His Ile Leu Ser Ala
 210 215 220
 Ile Leu Gln Phe Pro Ser Thr Leu Gly Arg Cys Lys Ala Phe Ser Thr
 225 230 235 240
 Cys Val Ser His Leu Ile Ile Val Thr Val His Tyr Gly Cys Ala Ser
 245 250 255
 Phe Ile Tyr Leu Arg Pro Gln Ser Asn Tyr Ser Ser Ser Gln Asp Ala
 260 265 270
 Leu Ile Ser Val Ser Tyr Thr Ile Ile Thr Pro Leu Phe Asn Pro Met
 275 280 285
 Ile Tyr Ser Leu Arg Asn Lys Glu Phe Lys Ser Ala Leu Cys Lys Ile
 290 295 300
 Val Arg Arg Thr Ile Ser Leu Leu
 305 310

<210> 131

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TaqMan PCR primer

<400> 131

atgccaggaa gaatgtcaga tt

<210> 132
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 132
 ccaacctcag tgataaccat cttcca 26

 <210> 133
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 133
 tgggatccct gttaagaaga ag 22

 <210> 134
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 134
 ctacagaggg caggcaaaa 19

 <210> 135
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 135
 tttctacctg tggctcccat ctgaca 26

 <210> 136
 <211> 22
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TaqMan PCR primer

<400> 136

ggaggtctga gacacatgaa ga

22

<210> 137

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TaqMan PCR primer

<400> 137

aatggcatcc taatttgtgt ca

22

<210> 138

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TaqMan PCR primer

<400> 138

caatcctgca tgagcccatg tacata

26

<210> 139

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TaqMan PCR primer

<400> 139

cactggccag catagataag aa

22

<210> 140

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TaqMan PCR primer

<400> 140
ctggccaatc tctatgttct tg 22

<210> 141
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 141
cccatgatg aaccaatta tctatgga 28

<210> 142
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 142
caacccttt ctgaatctgt tt 22

<210> 143
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 143
ctggccaatc tctatgttct tg 22

<210> 144
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 144
cccatgatg aaccaatta tctatgga 28

<210> 145
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 145
 caaccoccttt ctgaatctgt tt 22

 <210> 146
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 146
 gctgtggaaa atgactcttc ag 22

 <210> 147
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 147
 ttcttttggg attaacagac cagcct 26

 <210> 148
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 148
 acaggggcaa ttggatctc 19

 <210> 149
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 149
 tctcacctcc acacaccaat 20

 <210> 150
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 150
 ttctctttca atctctcctt cattga 26

 <210> 151
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 151
 gcattttggg agtgaaaaca 20

 <210> 152
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 152
 tctcctttct ggaatgcatt actcaa 26

 <210> 153
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: TaqMan PCR
 primer

 <400> 153

ggtagccttc tgcaattaca aa 22

<210> 154
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 154
tgaactttgt tccagaggag aa 22

<210> 155
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 155
tctcctttct ggaatgcatt actcaa 26

<210> 156
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 156
ggtagccttc tgcaattaca aa 22

<210> 157
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: TaqMan PCR
primer

<400> 157
ctaccacca gaagtgatca aa 22

<210> 158
<211> 26

<212> DNA
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